JW220-06

MASTER JET

USER'S MANUAL

MANUAL NO.JW220-UM-151

GRAPHTEC

TO ENSURE SAFE AND CORRECT USE

- To ensure the safe and correct use of your printer, read this manual thoroughly prior to use.
- After reading this manual, store it in a safe place for reference as necessary.
- Do not allow small children to touch the printer.
- The following describes important points for safe operation. Be sure to observe them strictly.

Conventions Used in This Manual

To ensure the safe and correct use of the printer as well as to prevent human injury and property damage, the safety precautions provided in this manual are ranked in the three categories described below. Be sure to gain a full understanding of the difference between each of the categories before reading the Manual.

⚠ **DANGER**	This category provides information that, if ignored, is highly likely to cause fatal or serious injury to the operator.
⚠ **WARNING**	This category provides information that, if ignored, is likely to cause fatal or serious injury to the operator.
⚠ **CAUTION**	This category provides information that, if ignored, could cause injury to the operator or damage to the printer.

Description of Safety Symbols



The ⚠ symbol indicates information that requires careful attention (including warnings). The specific point requiring attention is described by an illustration or text within or next to the ⚠ symbol.



The ⃠ symbol indicates an action that is prohibited. Such prohibited action is described by an illustration or text within or next to the ⃠ symbol.



The ❗ symbol indicates an action that must be performed. Such imperative action is described by an illustration or text within or next to the ❗ symbol.

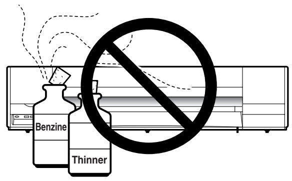
Safety Precautions

To ensure the safe and correct use of your printer, be sure to observe the following points.

Installation Precautions

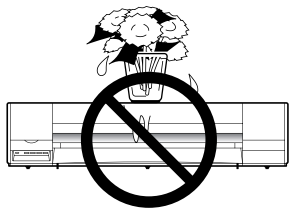
⚠WARNING

Do not install the printer in the vicinity of volatile solvents such as alcohol or thinner.



- A volatile solvent coming into contact with any of the internal electrical components may result in a fire hazard or electric shock.

Do not place objects such as those listed below on top of the printer.



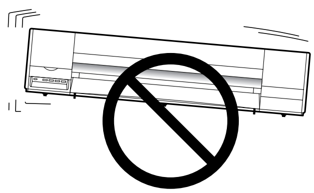
- Objects such as these coming into contact with any of the internal electrical components may result in a fire hazard or electric shock.

- Metallic objects such as necklaces
- Objects such as glasses, vases, houseplants, etc. that contain water or other fluids

If any of these objects does come into contact with the internal electrical components immediately turn off the power, remove the plug from the power outlet, and either contact the store where you purchased your printer or your nearest Graphtec representative.

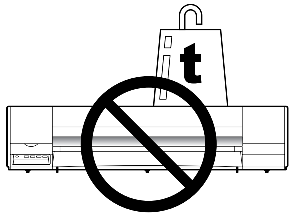
⚠CAUTION

Do not use the printer in an unstable location such as on a slope or a location that is subject to a lot of vibration.



- Such locations may cause the printer to tip over and cause injuries.

Do not place heavy objects on top of the printer.



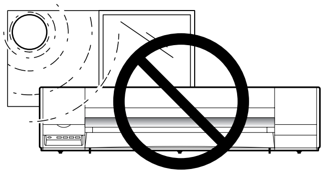
- Such objects may tip over or fall off, causing injuries.

If the printer is mounted on its dedicated stand, be sure to use the caster stoppers to fix the stand in place and prevent it from moving while the printer is being used.



- If the stand is not fixed in place, the printer may tip over and cause injuries.

Avoid using the printer in the following locations.



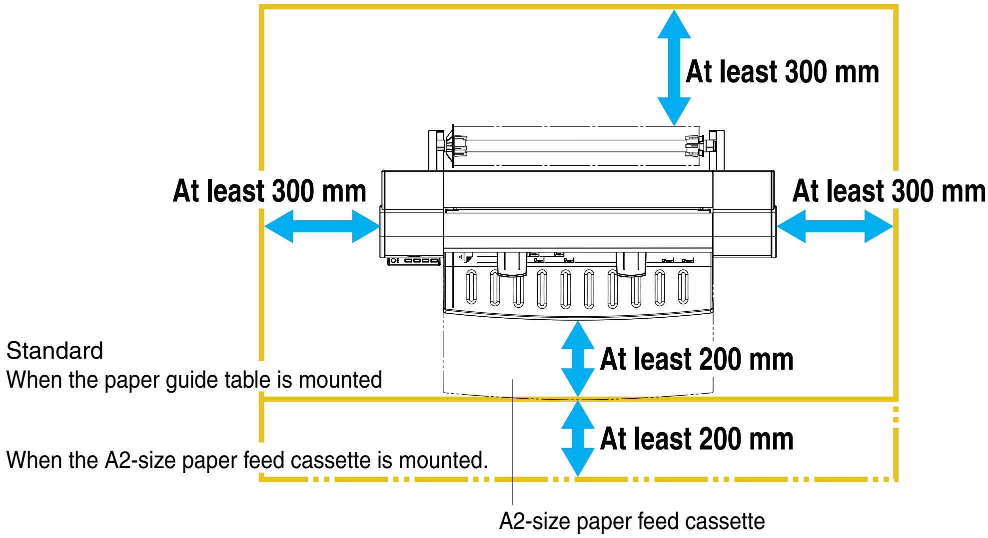
- Use in such locations may result in a fire hazard or electric shock.

- Excessively humid or dusty locations
- Locations exposed to direct sunlight
- Locations exposed to high temperatures
- Locations near flames or moisture

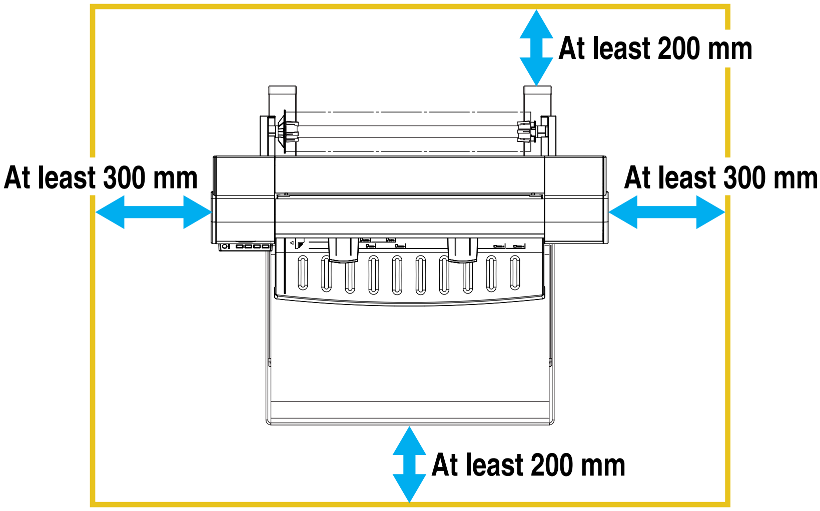
Leave plenty of space around the printer.

- Leave sufficient space for operations in front of and behind the printer.

When using the printer on a desktop



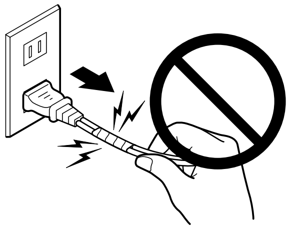
When using the printer on its optional stand



Power Supply Precautions

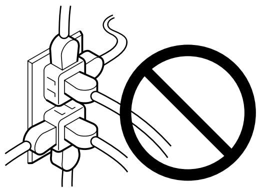
⚠ WARNING

Do not damage the power cable, or modify it in any way. Moreover, do not place heavy objects on the power cable, pull on the cable, or bend it excessively.



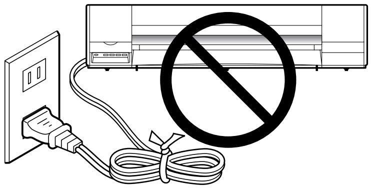
- There may be current leakage from the damaged parts, resulting in a fire hazard or electric shock.
- Do not unplug or plug in the power cable when your hands are wet, such action may result in electric shock.

Do not connect multiple devices to the same power outlet.



- Use of the printer in such a condition may result in a fire hazard or electric shock.

Do not bundle or tie-wrap the power cable.



- Use of a bundled power cable may result in a fire hazard or electric shock.

Make sure that the power cable is firmly inserted into the power outlet.



- Use of a power cable when the plug is not completely inserted into the power outlet may result in a fire hazard or electric shock.

Do not use a power cable other than the one supplied with your printer.

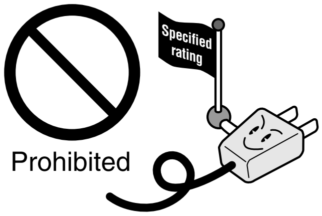


- Use of a different power cable may result in a fire hazard or electric shock.

⚠CAUTION

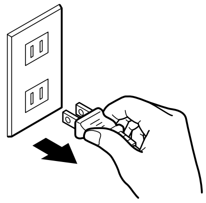
Do not connect the inkjet printer to a non-rated power supply.

- Use of a different supply voltage may result in electrical shock or a fire hazard due to current leakage.



When disconnecting the power cable, be sure to hold on to the plug, and not pull on the cable itself.

- Pulling on the cable will expose the core wires, or cause damage such as broken wires. Current leakage from the exposed or damaged areas may result in a fire hazard or electric shock.



As a general rule, do not use an extension cord.

- Use of an extension cord may result in a fire hazard or electric shock. If you must use an extension cord, unbundle it, and make sure that the power plug is firmly inserted into the extension cord socket.

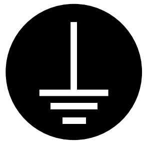


Make sure that the power plug can be readily unplugged at any time, and that there are no objects placed in its vicinity.

- Objects placed in the vicinity of the power plug will prevent its removal in an emergency.



Be sure to ground the earth terminal.



Ground the inkjet printer

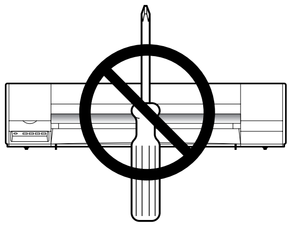
- If the cutting plotter is not grounded, the operator could suffer an electrical shock in case of current leakage.
- **Denmark**
  Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket (IEC 417, No. 5019) eller (IEC 417, No. 5017).
- **Norway**
  Apparatet må tilkoples jordet stikkontakt.
- **Sweden**
  Apparaten skall anslutas till jordat uttag.
- **Finland**
  Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Handling Precautions

⚠ WARNING

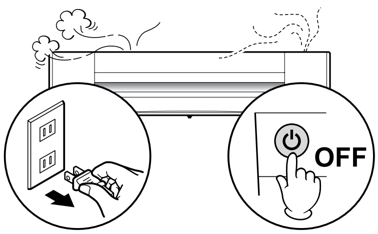
Do not disassemble or modify the printer.

- Such actions may result in a fire hazard or electric shock.



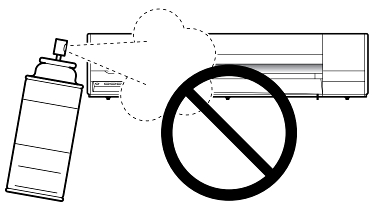
If the printer makes an unusual noise, generates smoke, overheats, emits a strange odor, or otherwise functions abnormally, immediately turn off the power, remove the plug from the power outlet, and either contact the store where you purchased your printer or your nearest Graphtec representative.

- Use of the printer in such a condition may result in a fire hazard or electric shock.

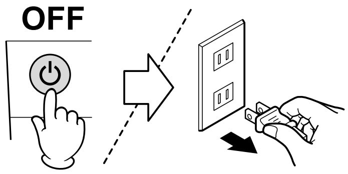


Do not use flammable aerosols or similar products in the vicinity of the printer.

- The gas contained in the spray may cause a fire hazard or electric shock if it comes into contact with the printer's internal electrical components.



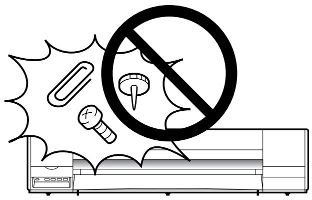
Before moving the printer, make sure that the power switch is in the "off" position and that the power plug has been removed from the power outlet.



- If the printer is moved while it is still plugged into the power outlet, the power cable may be damaged and cause a fire hazard or electric shock.

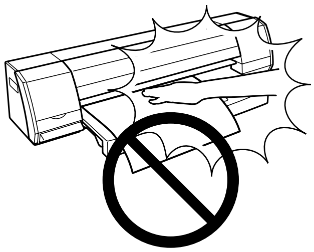
⚠CAUTION

Take care not to drop metallic items such as paper clips or staples, or spill water, other fluids or flammable solvents (alcohol, benzene, thinner, etc.) inside the printer.



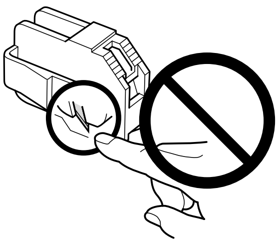
- Metallic items or fluids coming into contact with the internal electrical components may result in a fire hazard or electric shock. If such items or fluids fall or are spilled inside the printer, immediately turn off the power, remove the power plug from the power outlet and either contact the store where you purchased the printer or your nearest Graphtec representative.

Do not insert your hands inside the printer during a printing operation or when paper is being loaded.



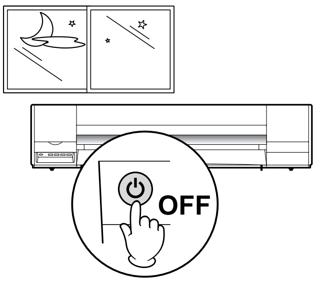
- Moving parts inside the printer may cause injuries.

Take care not to cut your hands or other parts of your body when handling the roll paper cutter.



- There is a risk of cutting your fingers on the cutter blade.

If the printer will not be used for an extended length of time, such as at night, turn off the power switch as a safety precaution.

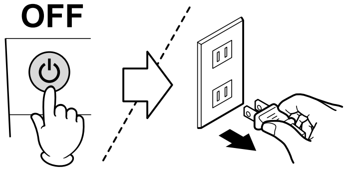


Maintenance and Inspection Precautions

⚠WARNING

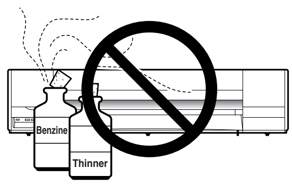
Be sure to turn off the power and remove the power plug from the power outlet before performing any cleaning operations.

- Failure to do so may result in a fire hazard or electric shock. Moreover, there is a risk of injury if the printer starts to move during a cleaning operation.



To clean the printer, use a cloth that has been dampened with neutral detergent and then well wrung out. Do not use volatile solvents such as alcohol, benzene or thinner to clean the printer.

- A volatile solvent coming into contact with any of the internal electrical components may result in a fire hazard or electric shock.



⚠CAUTION

At least once a year, remove the power plug from the power outlet and clean the prongs and surrounding areas.

- A build-up of dust may result in a fire hazard.

When cleaning or checking the inside of the printer, make sure that a metallic object such as a necklace or bracelet does not come into contact with any of the internal components.

- Such actions may result in injuries or an electric shock.

When replacing roll paper, loading paper, or removing paper that has become jammed in the printer, take care not to cut yourself on the edges of the paper.

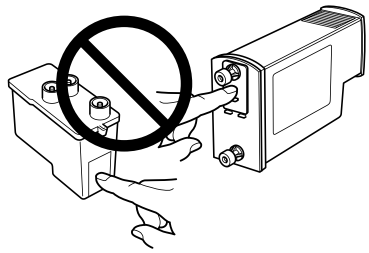
- Sharp paper edges may cause injuries.

Precautions on Handling the Consumable Items

⚠CAUTION

Do not touch any metallic parts on the print heads after a printing operation.

- These parts will be hot, and may cause burns.
- Printing malfunctions may occur.
- There is a risk of damage from static electricity.



Do not touch the ink cartridge openings or the head section of the print heads.

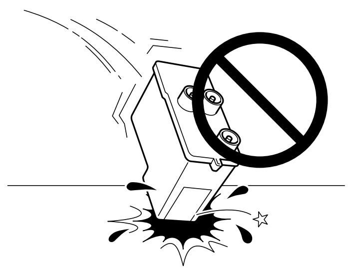
- Your fingers may become stained with ink.
- Printing malfunctions may occur.
- There is a risk of damage from static electricity.

As a safety precaution, store the print heads and ink cartridges in a location out of the reach of small children.

- If ink is licked or ingested accidentally, consult a doctor immediately.

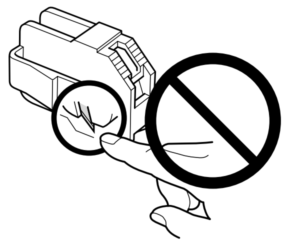
Do not drop or shake the print heads or ink cartridges.

- Such actions may cause the ink to leak or spatter, with the risk of staining your surroundings and clothing.
- The head section may become damaged, making the print head unusable.



Do not touch the blade of the roll paper cutter.

- You may cut your fingers on the blade.



The print heads are consumable items

- The print heads are consumable items. If printing is not performed correctly even after the print heads have been cleaned or adjusted, replace them with new ones. See Chapter 5, "Maintenance" for further details.

Precautions to observe when removing jammed paper

- When removing paper that has become jammed inside the printer, take care not to get ink from the paper on your clothing or hands. There is a possibility of ink adhering to your clothing or hands.
- If paper has become jammed during a paper feed operation, do not pull too hard on the paper to remove it. Pulling on the paper may cause it to tear, and torn paper fragments remaining inside the printer may cause paper feed problems.
- Please refer to Section 6.4, "If the Paper Becomes Jammed" for the correct removal procedure.

Precautions to Note When Unpacking the Printer

If the printer was stored in a location where the temperature dropped below 10 °C, allow sufficient time for the printer to become acclimatized to room temperature (the operating environment specification is the range from 15 °C to 30 °C) before mounting the print heads. (We recommend that you allow at least two hours for the printer to become acclimatized.)

Precautions to observe when installing the printer

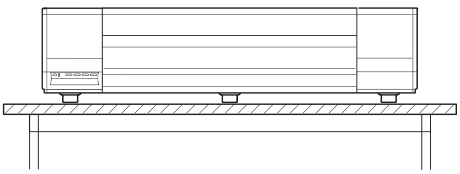
If the printer will be installed as a desktop model, be sure to heed the following points.

- Install the printer on a flat desk.
- Make sure that all five rubber feet are sitting on the desk.
- Do not install the printer on a stepped surface.

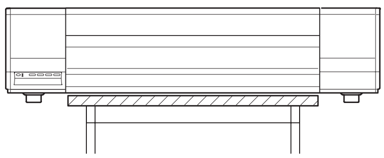
(Installing the printer in a location where its underside is touching another object may cause malfunctions to occur.)

If there is no desk available for installation, mount the printer on the dedicated stand (ST0060) that is available as an option.

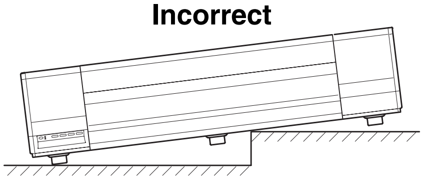
Correct



Incorrect



Incorrect



Precautions to observe when handling the paper

- Paper may not be fed correctly and may become jammed if the leading edge of the roll paper is not straight or if there is adhesive from the fastening tape remaining on the paper. Make sure that the leading edge is straight before loading the paper in the printer.
- Paper feed problems or paper jams may occur if paper that is not Graphtec-supplied paper is used. Be sure to use Graphtec-supplied paper.
- Depending on the storage conditions, the paper may become creased and/or the leading edge may curl up. The use of creased or curled paper may cause paper jams. Remove the creased or curled sections before loading the roll paper in the printer. (If you are using a cut sheet, remove the creased section before loading the sheet in the printer.)

Notes on the ink cartridges

Do not leave an ink cartridge that has been removed from the printer lying around for an extended period of time. Doing so may cause ink deterioration, inferior print quality, or clogging of the print head nozzles.

Notes on the print heads

Do not perform any unnecessary print head removal or mounting operations. Print head removal and mounting operations should only be performed when print head replacement is required.

Be sure to observe the following points when loading paper in the A2-size paper feed cassette

- Align the edges of the paper stack before loading it in the tray.
- Do not use paper that has been folded or creased.
- Fan the paper stack thoroughly before loading it in the tray.
  If the paper is not fanned, paper jams may occur or two or more sheets may be fed at the same time.

Notes on connecting the printer to a power outlet

Always leave the printer connected to a power outlet.
The printer periodically performs automatic maintenance operations in order to maintain print quality.

WARNING

Only computers or peripherals (computer input/output devices, terminals, printers, etc.) certified as complying with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, may be attached to this product when this product is operated in a residential environment. Operation with non-certified peripherals is likely to result in interference to radio and TV.

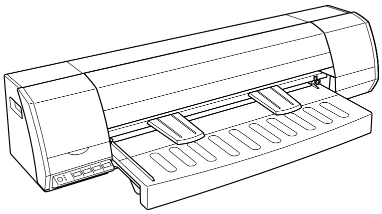
FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

"This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help."

PREFACE

Thank you for choosing the Graphtec JW220-06 inkjet printer.
Please read this manual thoroughly before attempting to use your new product to ensure that you use it safely and correctly.



Notes on this Manual

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(2) The product specifications and other information in this manual are subject to change without notice.
(3) While every effort has been made to provide complete and accurate information, please contact your sales representative or nearest Graphtec vendor if you find any unclear or erroneous information or wish to make other comments or suggestions.
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Precautions to Observe When Transporting the Printer

Be sure to read Section 5.8, "Precautions on Transporting the Printer" before transporting the printer to another destination. Do not transport the printer as is, as there is a possibility of the ink leaking out. If you have any questions or if anything is unclear, please contact your sales representative or nearest Graphtec vendor.

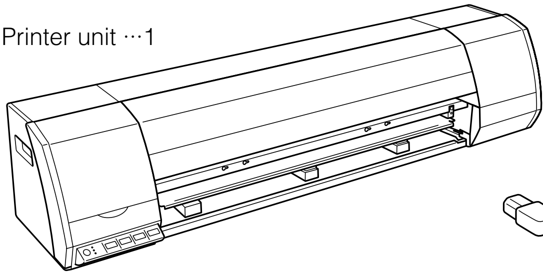
Contents

Chapter 1 Before Using the Printer

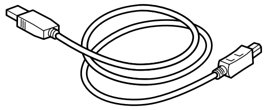
1.1 Checking the Contents of the Package

Check to confirm that all of the items shown below are present. If any item is missing, promptly contact the store where you purchased your printer or your nearest Graphtec representative.

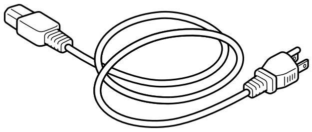
Printer unit ···1



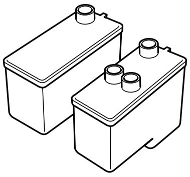
USB cable ···1



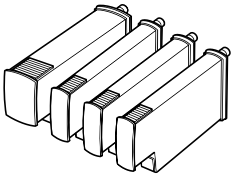
Power cable ···1



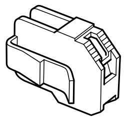
Print heads
(Black, color) ···1 of each



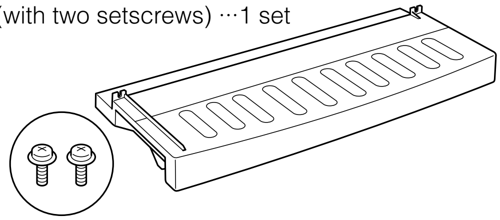
Ink cartridges
(Black, cyan, magenta, yellow) ···1 of each



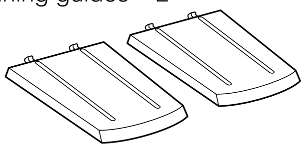
Roll paper cutter ···1



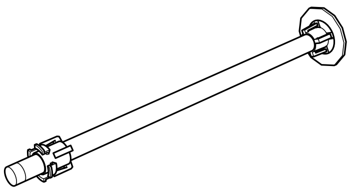
Paper guide table
(with two setscrews) ···1 set



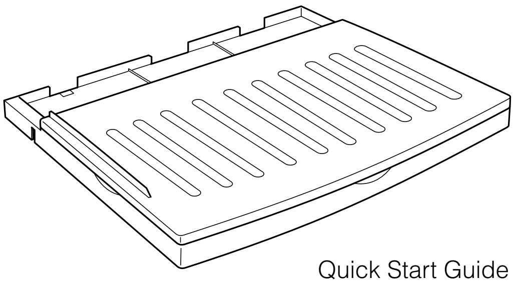
Anti-curling guides ···2



Roll paper stocker ···1 assembly

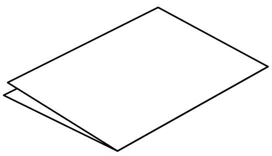


A2-size Paper Feed Cassette ···1 set

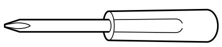


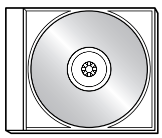
Software package (CD-ROM) ···1
· Printer driver
· User's manual (PDF format)
· Adobe Acrobat Reader

Quick Start Guide ···1



Phillips screwdriver ···1





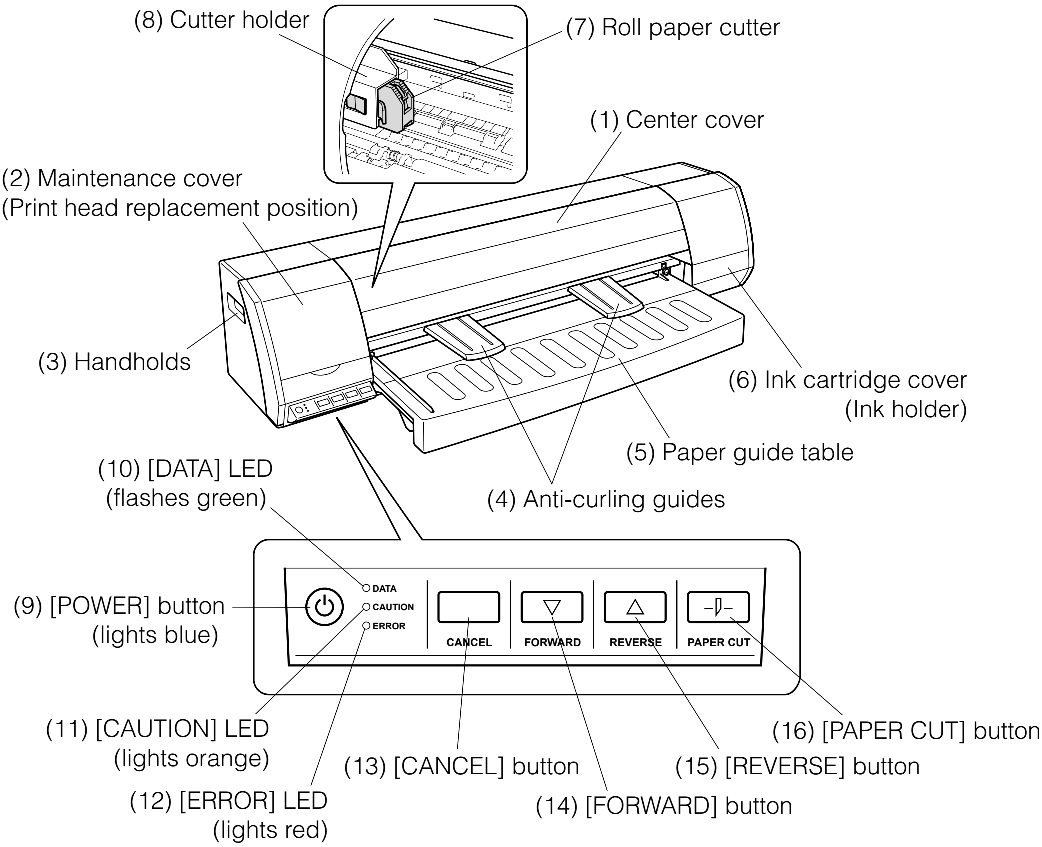
1.2 Parts Names and Functions

Front View

(1) Center cover .... Used when mounting the roll paper cutter and when cleaning the inside of the printer unit.
(2) Maintenance cover .... Used when the print heads are replaced. (Print head replacement position)
(3) Handholds .... These handles (located at the left and right sides of the printer) are used to grip the printer when moving it.
(4) Anti-curling guides .... These guides are attached when thin media such as tracing paper is used.
(5) Paper guide table .... Used for loading paper for printing.
(6) Ink cartridge cover .... Used when mounting the ink cartridges. (Ink holder)
(7) Roll paper cutter .... Used for cutting roll paper.
(8) Cutter holder .... Used to mount the roll paper cutter.

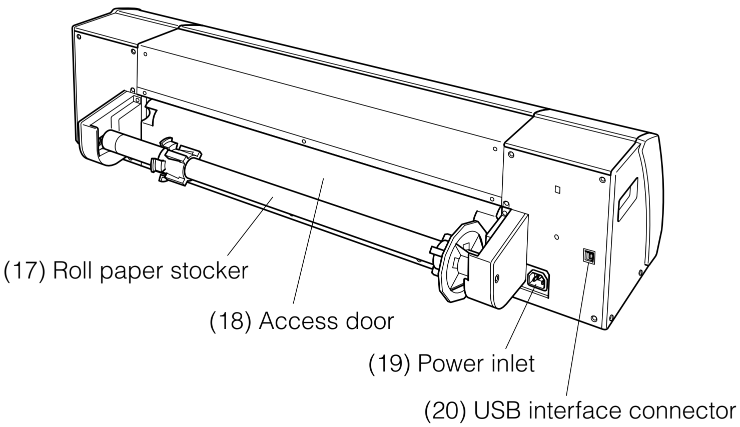
Control panel

(9) [POWER] button .... Press this button to turn the power supply to the printer on or off. The button lights (blue) when the power supply is on.
(10) [DATA] LED .... Flashes (green) when data is being received from the computer.
(11) [CAUTION] LED .... Lights (orange) when the printer is out of paper.
(12) [ERROR] LED .... Lights (red) when there is a paper jam, when the print head carrier stops, or when some other malfunction occurs.
(13) [CANCEL] button .... Press this button to cancel the printing operation.
(14) [FORWARD] button ..... Press this button to feed the paper in the forward direction when the printer is in standby status.
(15) [REVERSE] button ...... Press this button to feed the paper in the reverse direction when the printer is in standby status.
(16) [PAPER CUT] button ... Press this button to cut roll paper when the printer is in standby status.



Rear View

(17) Roll paper stocker .... Used for loading roll paper for printing.
(18) Access door .... Open this door to remove the paper if it becomes jammed.
(19) Power inlet .... Used to connect the power cable.
(20) USB interface connector .... Used to connect the USB cable.



A2-size Paper Feed Cassette

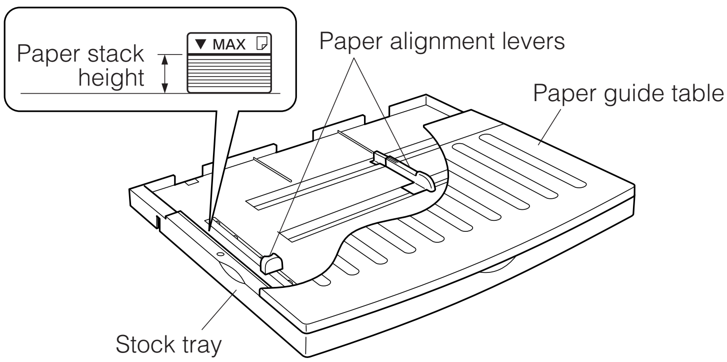
The A2-size paper feed cassette is designed specifically for feeding plain paper.
Cut sheets of standard-size paper, from A4-size to A2-size*1, can be loaded in the A2-size cassette to enable automatic feeding of paper to the printer.
*1: Please note that only paper of the same size can be loaded at one time in the cassette.

The number of cut sheets that can be loaded*2

- Plain paper (64 g/m^2): approx. 100 sheets

*2: The number of sheets is a guideline only. When actually loading the paper in the cassette, make sure that the top of the stack is below the line under the [▼ MAX] mark printed on the stock tray.

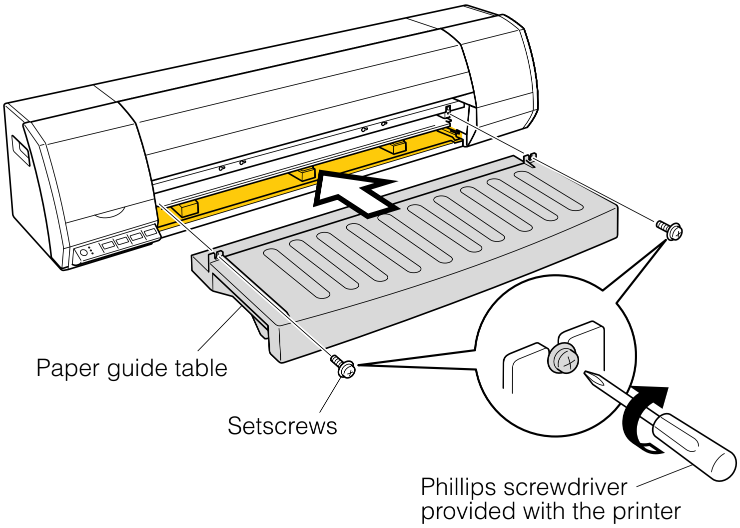
Paper alignment levers .... Move these levers to match the paper size and hold the paper in place.
Stock tray .... Used to load cut sheets for feeding.
Paper guide table..................... Use this table when manually feeding sheets for printing.



Chapter 2 Connection and Preparations

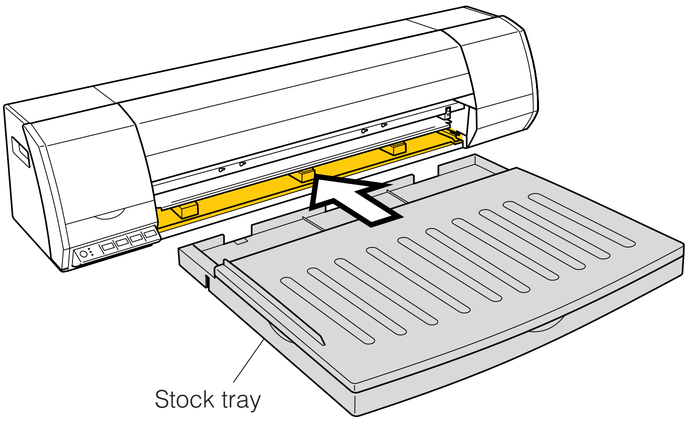
2.1 Attaching the Paper Guide Table

Firmly insert the paper guide table into the printer until it makes contact with the rear side, and then fasten it in place with the two setscrews provided.



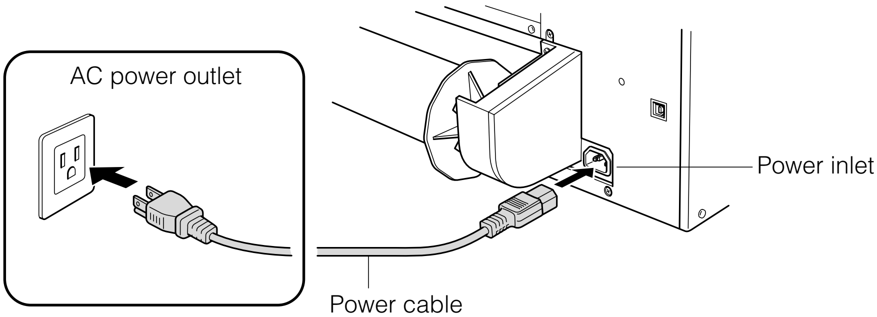
2.2 Attaching the A2-size Paper Feed Cassette

Attach the A2-size paper feed cassette, insert it fully into the printer as shown in the diagram below. After the cassette has been inserted, gently pull on it to check that it is firmly inserted.



2.3 Connecting to the Power Supply

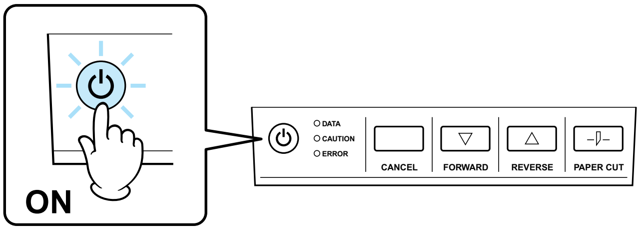
Connect one end of the power cable provided to the printer's power inlet and the other end to an AC power outlet of the rated supply voltage.



2.4 Turning the Power On and Off

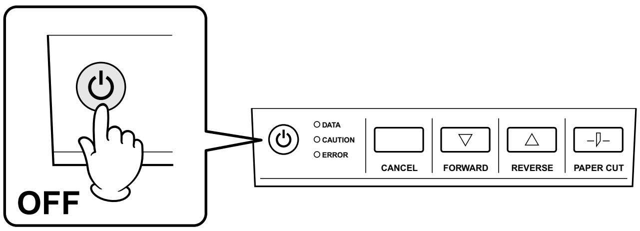
Turning the Power On

Press the [POWER] button on the printer's control panel.
When the printer is in the power-on status, the [POWER] button lights blue.



Turning the Power Off

Press the [POWER] button on the printer's control panel.
When the printer is in the power-off status, the [POWER] button LED is extinguished.

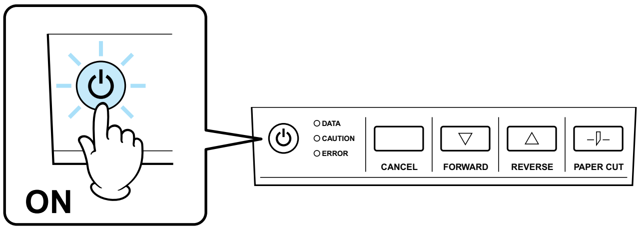


CHECKPOINT

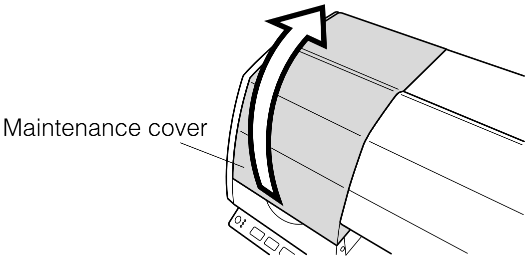
After the printer has been turned off, wait at least five seconds before turning it on again.

2.5 Mounting the Print Heads

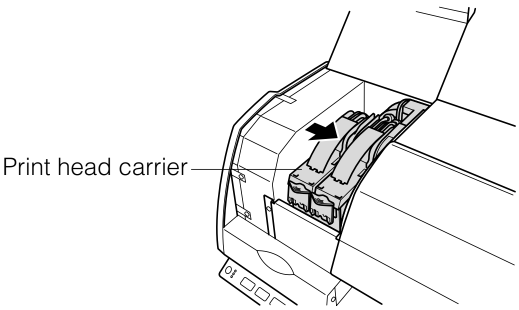
1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.



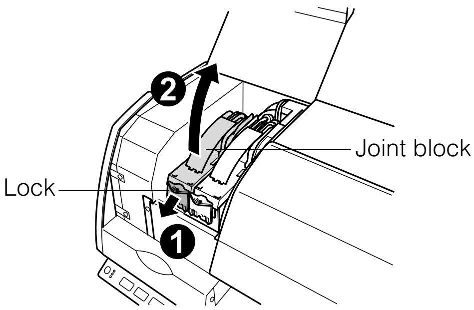
2. Open the maintenance cover at the left-hand side of the printer.



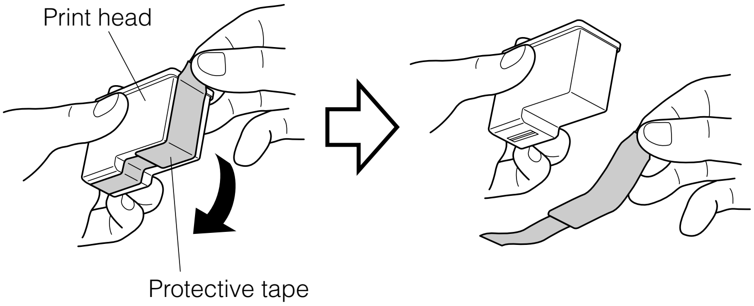
3. The print head carrier moves to the print head replacement position.



4. Press down on the lock to open the joint block.



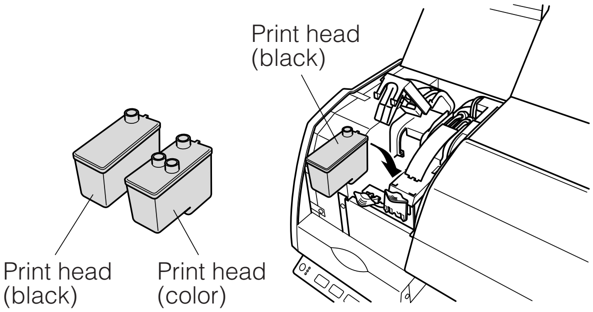
5. Prepare the print heads for mounting by removing the protective tape.



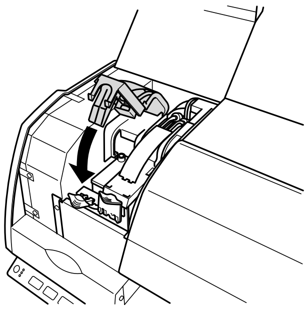
⚠ CAUTION

- **Do not drop or shake the print head. Such actions may cause the ink to leak or spatter, with the risk of staining your surroundings and clothing. Moreover, the head section may become damaged, making the print head unusable.**
- **Do not touch the metallic parts of the print head or the print head section itself. Such actions will adversely affect the printing. Moreover, there is a risk of damage to the print head from static electricity.**

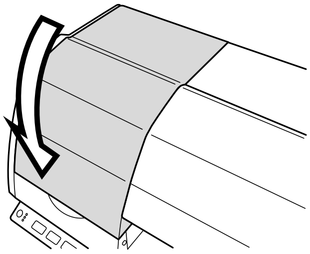
6. Mount the print heads. Mount the black print head in the left-hand holder. Next, mount the color print head in the right-hand holder.



7. Press down on the joint block until it makes an audible click.



8. Gently close the maintenance cover.

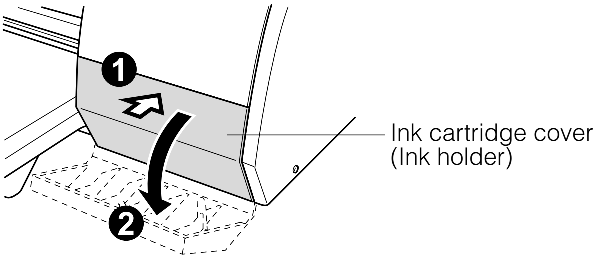


2.6 Mounting the Ink Cartridges

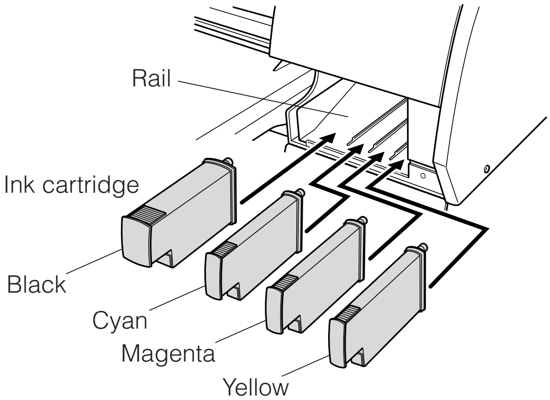
CHECKPOINT

- **Before mounting the ink cartridges, make sure that the print heads have been mounted.**
- **Perform this procedure with the printer in the power-on status. Check that the [POWER] button is lit blue.**
- **There are four types of ink cartridges: black (BK), cyan (C), magenta (M) and yellow (Y). Check their mounting positions in the ink holder in the printer, and make sure that each cartridge is mounted correctly.**

1. Open the ink cartridge cover at the right-hand side of the printer.

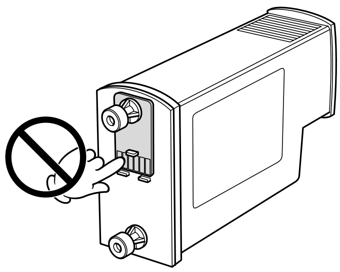


2. Align each ink cartridge with its corresponding rail on the ink holder, and then insert it gently until it clicks into place. At this time, check the color of each ink cartridge and make sure that it is inserted at the correct position.

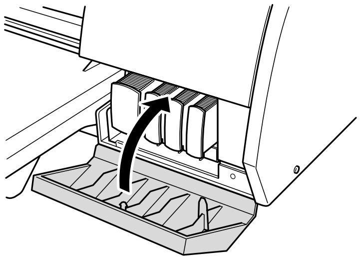


⚠ CAUTION

- **Do not touch the printed circuit board part of the ink cartridges with your fingers. Such action may cause damage due to static electricity.**
- **Do not drop or shake the ink cartridges. Such actions may cause the ink to leak or spatter, with the risk of staining your surroundings and clothing.**



3. When all four ink cartridges have been mounted, gently close the ink cartridge cover.



CHECKPOINT

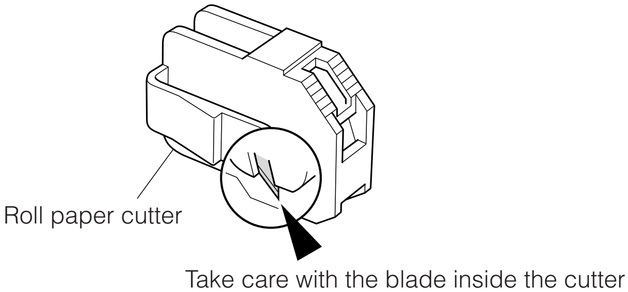
The printer driver can be used to check the status of the print heads and the ink cartridges. For further details, see Chapter 4, "Printer Driver".

2.7 Mounting the Roll Paper Cutter

⚠ CAUTION

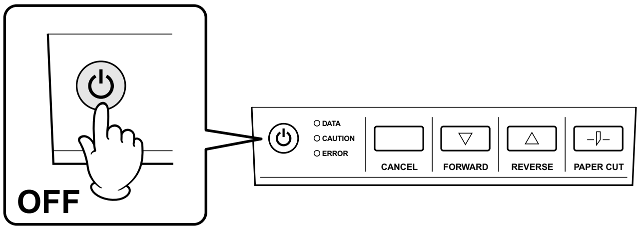
- **Take care not to cut your fingers or other parts of your body on the roll paper cutter blade.**
- **When mounting the roll paper cutter, do not touch any of the internal components of the printer other than the cutter holder.**



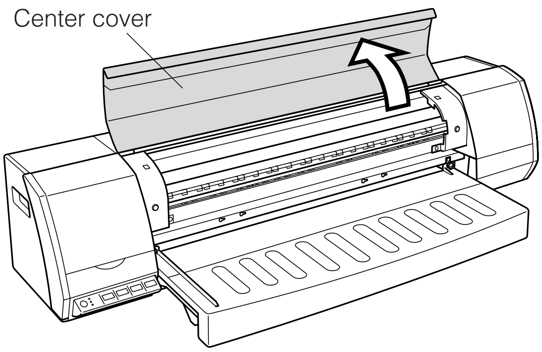


Note: The roll paper cutter is a consumable item.

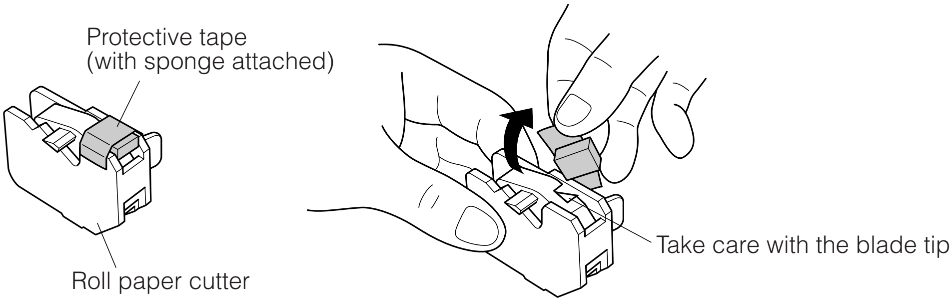
1. Press the printer's [POWER] button to turn off the printer.
   Check that the [POWER] button LED is extinguished.



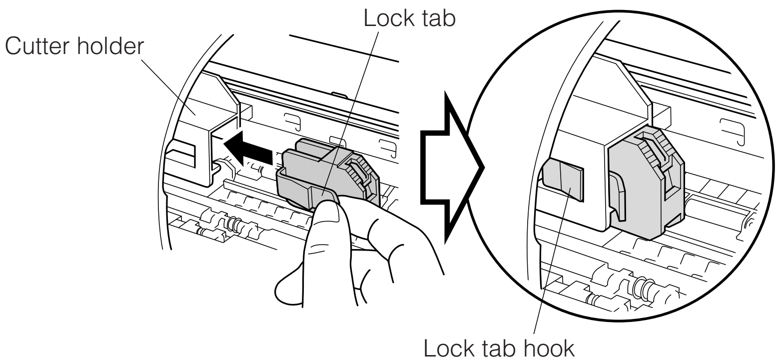
2. Open the center cover.



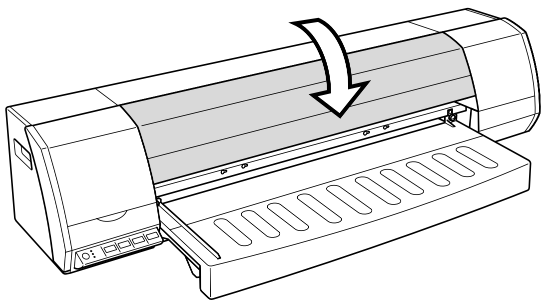
3. Prepare the roll paper cutter for mounting.
   Remove the protective tape (with a piece of sponge attached) from the tip of the roll paper cutter blade, taking care not to cut yourself on the blade.



4. Hold the roll paper cutter by its lock tab, and insert the cutter firmly into the holder.
   After the roll paper cutter has been mounted, check that the lock tab's hook is engaged in the cutter holder's slot.



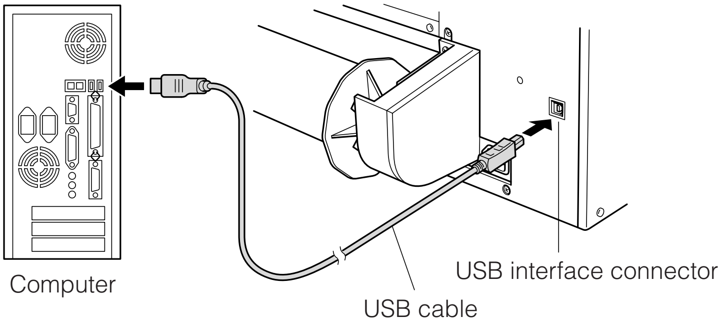
5. Close the center cover to complete the roll paper cutter mounting operation.



2.8 Connecting the Printer to a Computer

USB Connection

A USB cable is used to connect the printer to the computer, via the respective USB interface connectors. The connectors at the computer and printer ends of the USB cable have different shapes. Make sure that the cable is oriented correctly before making the connection.



IMPORTANT

Make sure that the USB cable is firmly inserted into the interface connectors.
When using a USB cable, a USB driver must be installed in the computer. Do not connect the cable before the driver has been installed.

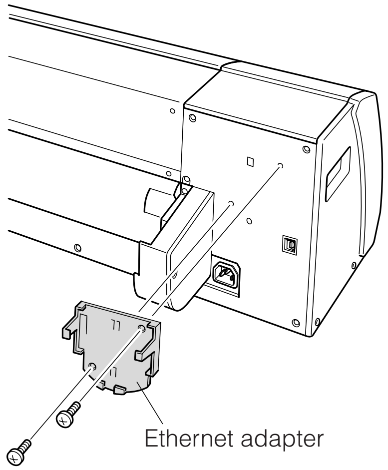
CHECKPOINT

Please see the separate "Quick Start Guide" for the printer driver installation procedure.

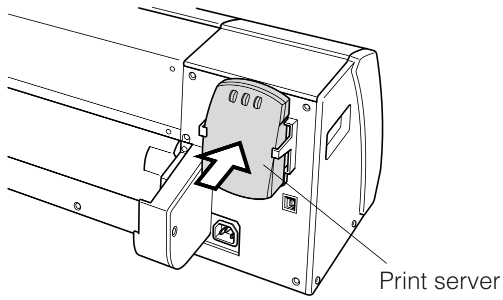
Ethernet connection (option)

If an Ethernet print server (option) is used, the printer can be used in a network environment. Please see the user's manual provided with the Ethernet print server (option) for the network connection settings and other details.

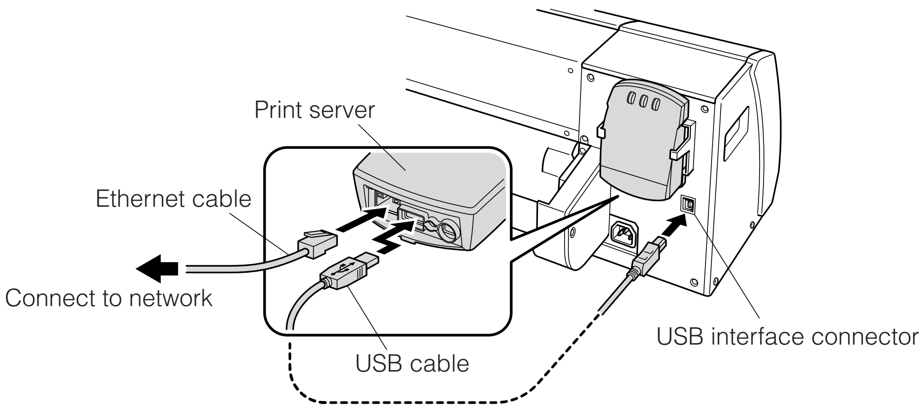
1. Use the two screws provided with the Ethernet adapter to attach the adapter to the printer.



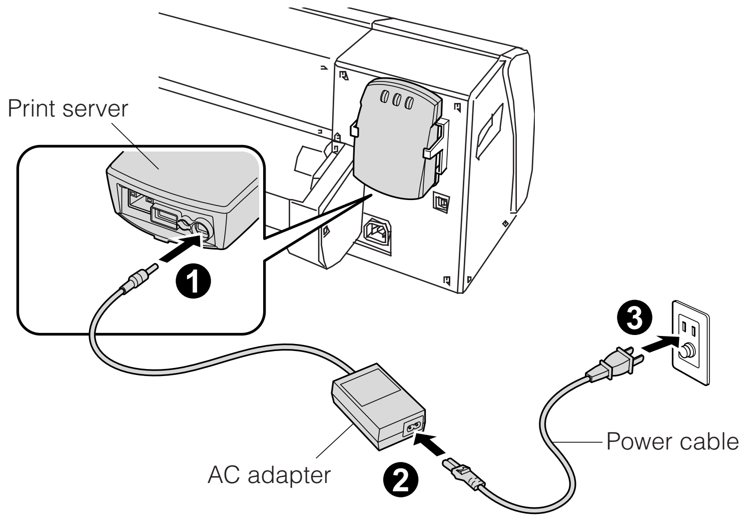
2. Mount the Ethernet print server on the Ethernet adapter.



3. Use the USB cable to connect the printer and the print server.
   Next, use the Ethernet cable to connect the print server to the network.



4. Connect the AC adapter to the print server.



Chapter 3 Loading the Paper

3.1 Usable Paper Types

The JW220 printer can handle a wide range of paper types up to A1 size (both roll paper and cut sheets). Select the paper type that best suits your printing application. In addition, use of the A2-size paper feed cassette enables automatic feeding of cut sheets (plain paper) of the same size.

Paper Types and Sizes

The paper types and sizes that can be used with the JW220 printer are shown in the following tables.

Paper types

Roll paper

Classification	Name	Part Name*1	Abbre-viation	Weight (g/m^2)	Thickness (µm)	Features
Plain paper	Plain paper	JC-**R-PM JC-**R-PM-R2	PM	64	Approx.90	80% whiteness
	Recycled paper	JC-**R-RMW2-R2	RMW2	64	Approx.92	80% whiteness, 70% recycled-paper content Suitable for outputting check prints
	Recycled paper	JC-**R-RM2	RM2	64	Approx.84	70% whiteness, 100% recycled-paper content Suitable for outputting check prints
Coated paper	Matte	JC-**R-ST2 JC-**R-ST2-R2	ST2	90	Approx.114	Plain paper is used as the base Suitable for outputting check prints and simple graphics
	Ecological	JC-**R-RCT-R2	RCT	80	Approx.110	80% whiteness, 70% recycled -paper content Suitable for outputting check prints
	Thick matte	JC-**R-STM2	STM2	117	Approx.153	Plain paper is used as the base; white paper suitable for graphics Suitable for outputting color drawings, posters, etc.
Tracing paper	Tracing paper	JC-**R-TM2	TM	75	Approx.68	Thin type, high translucency, natural tracing paper
Glossy paper	Photo paper	JC-**R-WRP2	WRP	175	Approx.180	Fast-drying photo paper that is suitable for printing graphics Vivid color reproduction; optimal for printing posters, etc.

Cut sheets

Classification	Name	Part Name*1	Abbre-viation	Weight (g/m^2)	Thickness (µm)	Features
Plain paper	Plain paper	JC-**L-PM-100	PM	64	Approx.90	80% whiteness
Tracing paper	Tracing paper	JC-**L-TM2	TM	75	Approx.68	Thin type, high translucency, natural tracing paper

*1 These part names are for Graphtec-supplied paper. The "**" part of the name varies according to the paper size selected. Please see Appendix B, "Options and Supplies" for further details.

IMPORTANT

- **To obtain high quality printed results, be sure to use Graphtec-supplied paper.**
- **Some of the paper types may require a longer ink drying time than others. Allow sufficient time for the ink to dry before handling the prints.**
- **When using plain (or recycled) paper when "Normal" is specified for the print**

quality setting and high-density (dark) printing is performed, the paper may become wavy. If this happens, either change the print quality setting to "High quality" or else use coated or glossy paper instead.

Paper sizes

Roll paper: The following roll paper sizes can be used.

The maximum roll diameter must be less than 100 mm, the inner core diameter 2 inches, and the rolls outside wound (the print side is on the outside of the roll).

Roll paper sizes (paper widths)	
ISO A1	Paper width 594.0 mm
ISO A2	Paper width 420.0 mm
ISO A3	Paper width 297.0 mm
JIS B2	Paper width 515.0 mm
JIS B3	Paper width 364.0 mm
ARCH 24	Paper width 24 inch

CHECKPOINT

Please see Section 3.2, "Using Roll Paper" for details on how to load roll paper in the printer.

Cut sheets: The following cut sheet sizes can be used.

Cut sheet sizes (paper sizes)	
ISO A1	594.0 x 841.0 mm
ISO A2	420.0 x 594.0 mm
ISO A3	297.0 x 420.0 mm
ISO A4	210.0 x 297.0 mm
JIS B2	515.0 x 728.0 mm
JIS B3	364.0 x 515.0 mm
JIS B4	257.0 x 364.0 mm

CHECKPOINT

Please see Section 3.3, "Using Cut Sheets" for details on how to load cut sheets in the printer.

Print Area

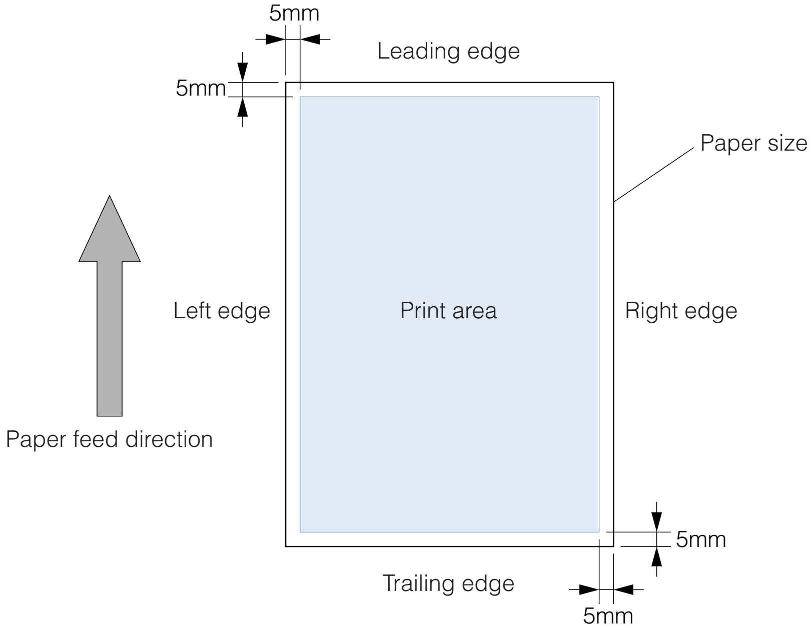
The JW220 printer can print within the areas described below.

⚠ CAUTION

- **Depending on how the paper is loaded in the printer, the margin sizes may vary slightly.**
- **When the roll paper cutter is used to cut roll paper, the operating environment may cause slight changes in the paper size (the length in the paper feed direction) to occur.**

Roll paper

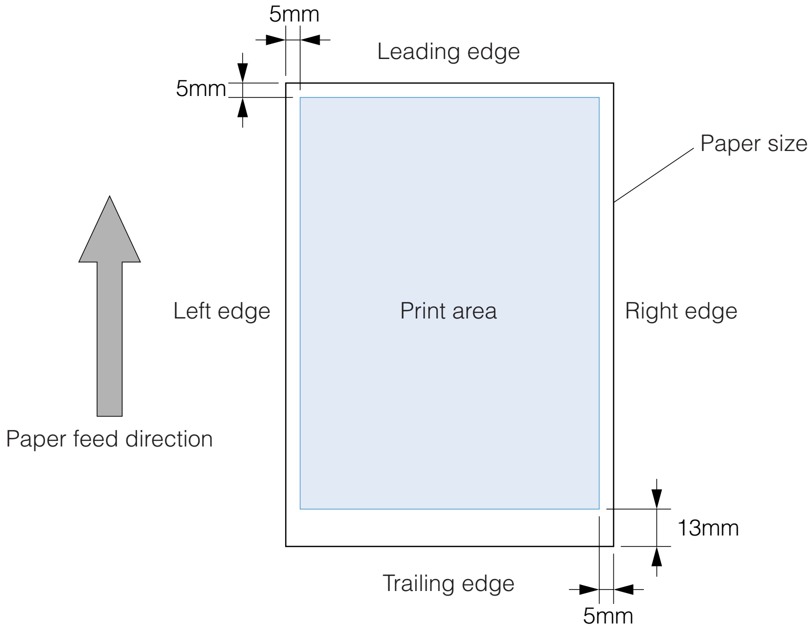
Printing can be performed in the area up to 5 mm from all the edges of the paper (leading edge, trailing edge, left and right edges).



Cut sheets

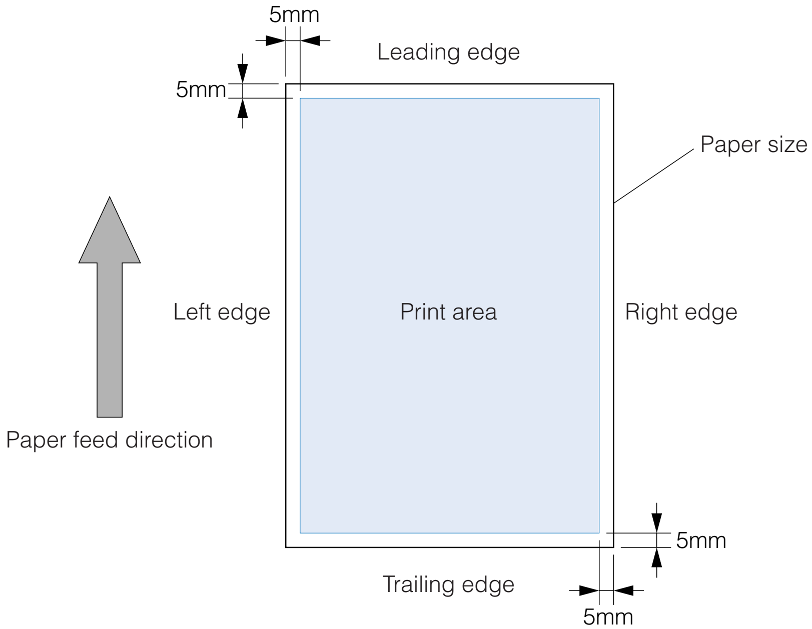
Standard print area

Printing can be performed in the area up to 5 mm from the leading edge, 13 mm from the trailing edge, and 5 mm from the left and right edges. (When "Wide" has been selected for "Margin Settings" in the driver setting menu.)



Expanded print area

Printing can be performed in the area up to 5 mm from all the edges of the paper (leading edge, trailing edge, left and right edges). (When "Narrow" has been selected for "Margin Settings" in the driver setting menu)



⚠ CAUTION

- **With the Expanded print area, the print quality may deteriorate at the trailing edge.**
- **The guaranteed area for accurate printing is the area where the margins are 5 mm for the leading edge, 13 mm for the trailing edge, and 5 mm for the left and right edges.**

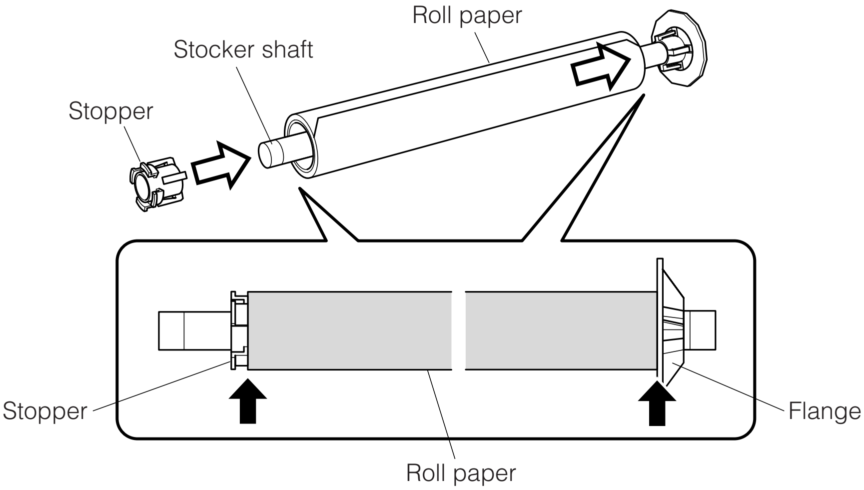
IMPORTANT

- **To obtain high quality printed results, be sure to use Graphtec-supplied paper.**
- **The rolls must be outside wound, with printing performed on the outer surface. When loading a roll of paper in the printer, try to avoid touching the printing surface directly with your hands.**
  Fingerprints on the printing surface will adversely affect ink adhesion.
- **Take care not to cut your fingers on the edges of the paper when handling it.**
- **Paper may not be fed correctly and may become jammed if the leading edge of the roll paper is not straight or if there is adhesive from the fastening tape remaining on the paper. Make sure that the leading edge is straight before loading the paper in the printer.**

Loading roll paper

1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.
   Note: Immediately after the power is turned on, the printer performs an initialization operation. Wait until the initialization operation has been completed before proceeding with the paper loading operation.

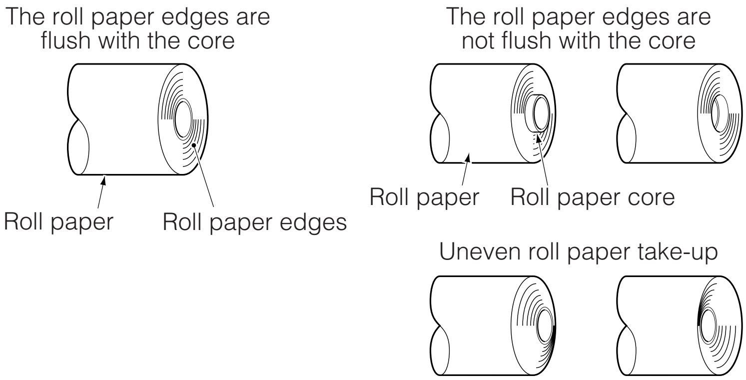
2. Check the direction in which the paper is wound, and then slide the roll onto the stocker shaft. At this time, slide the roll along the shaft until its right edge (as shown in the figure) fits onto the flange. Next, firmly insert the stopper so that it fits into the core at the other end of the roll.



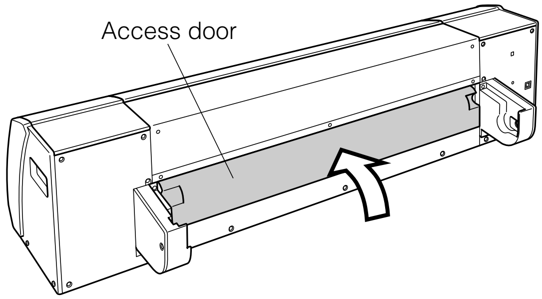
⚠ CAUTION

If the paper edges are not flush with the core at the sides of the roll, printing will

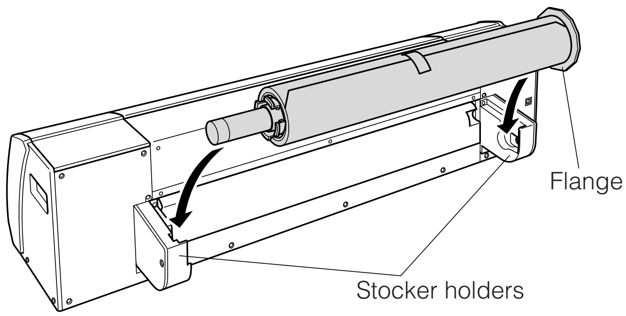
not be performed correctly. Make sure that that the paper edges at both the left and right sides of the roll are flush with the core.



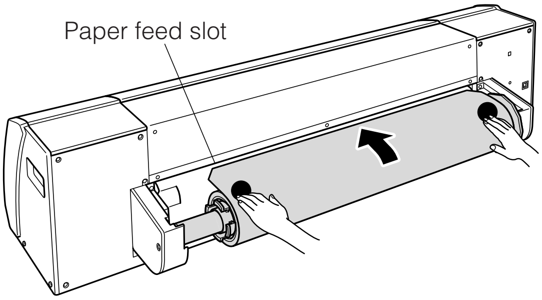
3. Check that the access door is closed.
   If it is open, close it.



4. Insert the roll paper stocker holding the roll into the stocker holders, making sure that the flange is at the right.



5. Pull a length of paper out from the roll, making sure that the left and right sides are pulled out evenly. Next, while making sure that there is no slack in the roll, place your hands on the areas indicated by a black circle (●) in the figure below and guide the leading edge of the paper into the paper feed slot until it contacts the feed rollers inside the printer.
   A "beep" sound is emitted, and the roll paper is loaded automatically.



⚠ CAUTION

- **Make sure that the left and right sides of the roll paper are pulled out evenly. If the roll paper is loaded at an angle, the skew detection function will cause the [ERROR] LED (red) on the control panel to light.**
  If the [ERROR] LED lights (red), follow the procedure described below to pull the roll paper out toward the rear of the printer and then reload it.

Procedure

(1) Hold the roll paper that has been inserted into the paper feed slot at the left and right edges, and pull it gently back toward the rear of the plotter (the side with the roll paper stocker).

(2) Rotate the roll paper stocker toward the rear, and, while making sure that the right edge touches the flange, wind the paper back onto the roll. At this time, make sure that the left and right edges of the roll paper are flush with the core.

(3) Press the [CANCEL] button on the control panel, and check that the [ERROR] LED (red) is extinguished.

(4) Pull a length of paper out from the roll, making sure that the left and right sides are pulled out evenly, and then insert the leading edge into the paper feed slot once again.

- **If the leading edge is cut on an angle, remove the roll paper stocker from the printer, remove the roll from the stocker, and then trim the leading edge so that it is parallel with the stocker.**

6. The roll paper stops automatically at the printing position, and the printer is now ready to print.

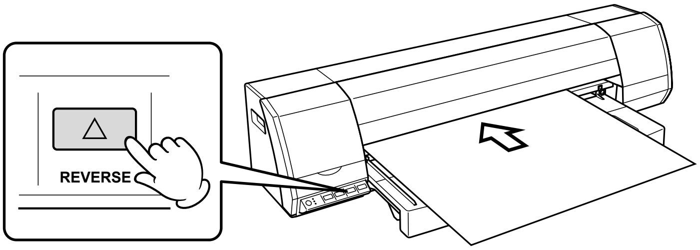
CHECKPOINT

- **Make sure that there is no slack in the paper. If there is any slack, rotate the roll paper stocker toward the rear to take up the slack, making sure that the right edge is in contact with the flange.**

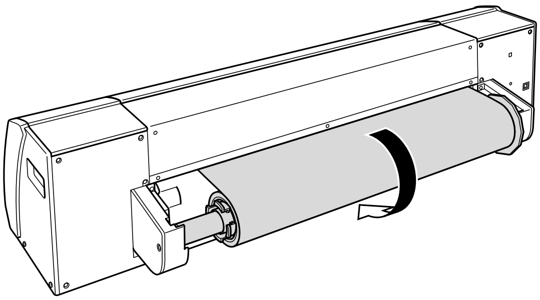
Removing roll paper

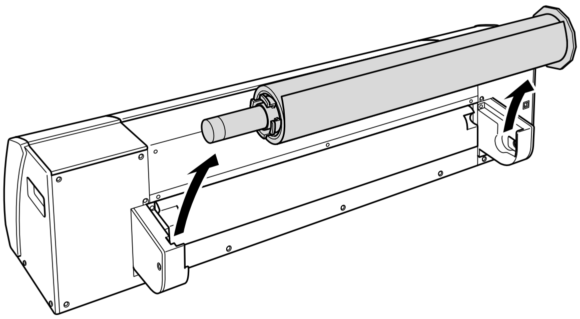
1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.
   Note: Immediately after the power is turned on, the printer performs an initialization operation. Wait until the initialization operation has been completed before proceeding with the paper removal operation.

2. Press the [REVERSE] button on the control panel to feed the paper toward the rear of the printer.



3. Rotate the roll paper stocker in the reverse direction to take up the paper. Next, remove the roll paper stocker from the stocker holders.





3.3 Using Cut Sheets

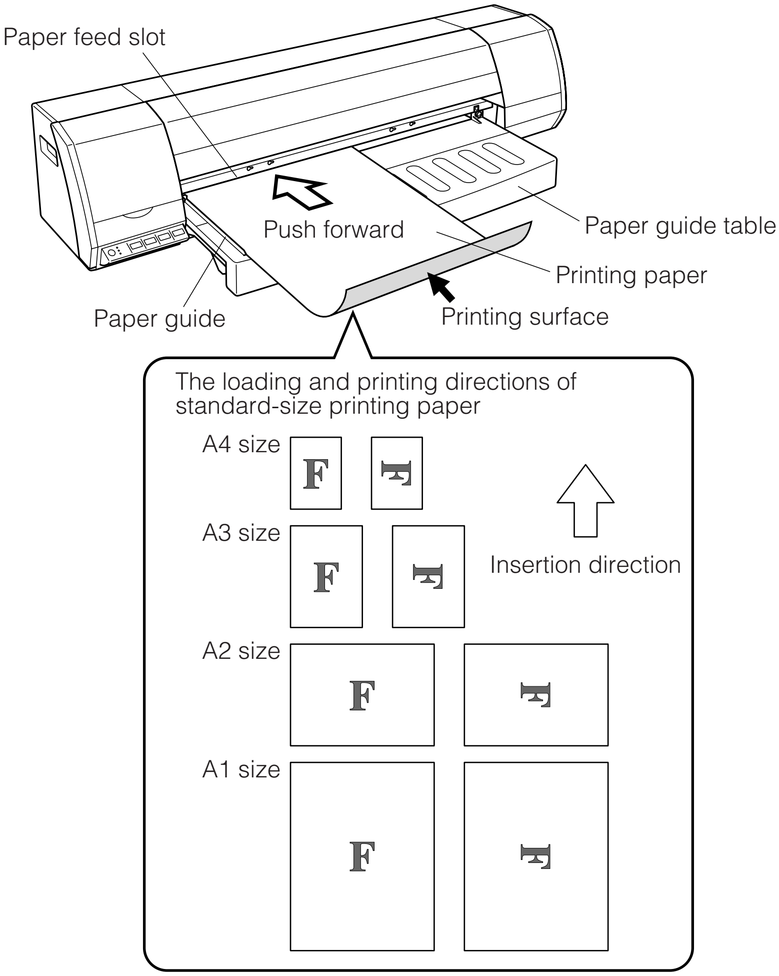
IMPORTANT

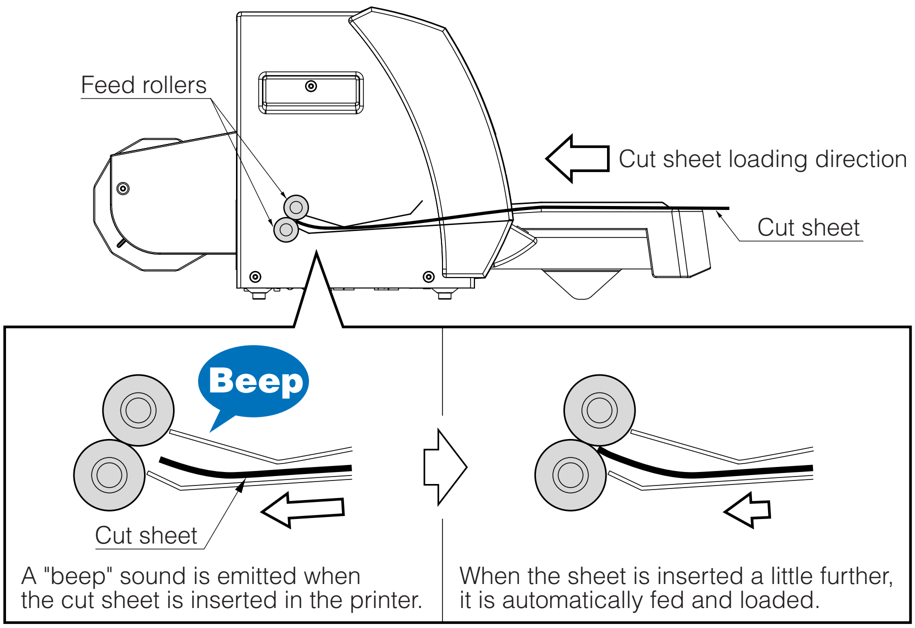
- **To obtain high quality printed results, be sure to use Graphtec-supplied paper.**
- **Load cut sheets with the printing surface face-down. When loading a cut sheet in the printer, try to avoid touching the printing surface directly with your hands.**
  Fingerprints on the printing surface will adversely affect ink adhesion.
- **Take care not to cut yourself on the edges of the paper when handling it.**
- **Load cut sheets individually.**

Loading cut sheets

1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.

2. Check the orientation of the cut sheet, making sure that the printing surface is face-down, and then align the left edge of the sheet with the paper guide on the paper guide table. Next, while lightly holding down the sheet, insert its leading edge into the paper feed slot until it contacts the feed rollers inside the printer. A "beep" sound is emitted, and the cut sheet is loaded automatically.



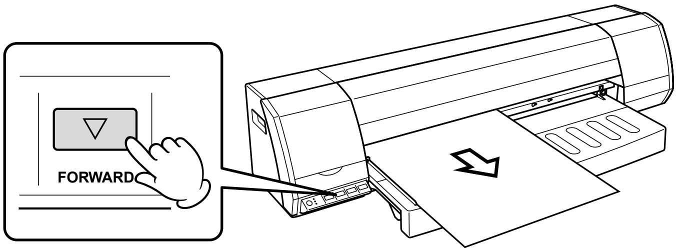


3. The cut sheet stops automatically at the printing position, and the printer is now ready to print.

Removing a cut sheet

1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.

2. Press the [FORWARD] button on the control panel to feed the sheet in the forward direction.



3.4 Using the A2-size Paper Feed Cassette

The A2-size paper feed cassette is designed specifically for feeding plain paper.
Cut sheets of standard-size paper, from A4-size to A2-size*, can be loaded in the A2-size cassette to enable automatic feeding of paper to the printer.

* Please note that only paper of the same size can be loaded at one time in the cassette.

The number of cut sheets that can be loaded

Paper type	Loadable number of sheets	Remarks
Plain paper (64 g/m^2)	Approx. 100 sheets	The number of sheets is a guideline only. When actually loading the paper in the cassette, make sure that the top of the stack is below the line under the [▼MAX] mark printed on the stock tray.

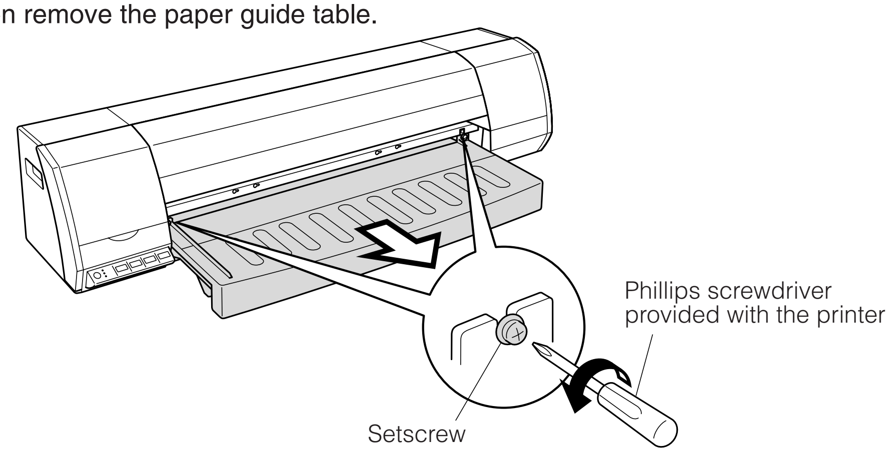
⚠CAUTION

- **Plain paper is the only type of paper that can be loaded in the A2-size paper cassette. When using cut sheets of tracing or other thin paper, load each sheet manually on the cassette's paper feed table.**
- **Be sure to observe the following points when loading paper in the A2-size paper feed cassette:**
  - *** Align the edges of the paper stack before loading it in the tray.**
  - *** Do not use paper that has been folded or creased.**
  - *** Fan the paper stack thoroughly before loading it in the tray.**
    If the paper is not fanned, paper jams may occur or two or more sheets may be fed at the same time.

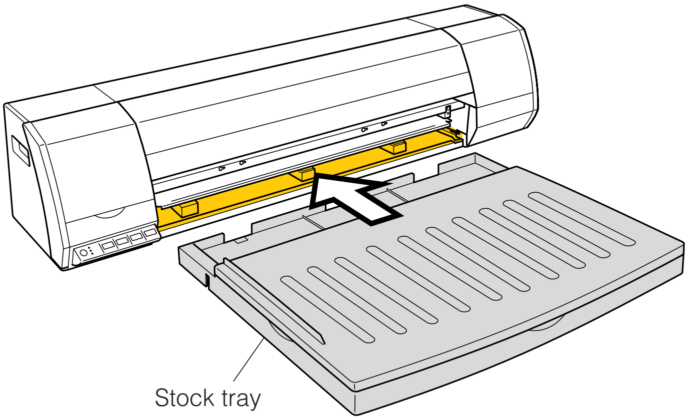
Attaching and removing the A2-size paper feed cassette

Attaching the cassette

1. Unfasten the two setscrews used to attach the paper guide table to the printer, and then remove the paper guide table.

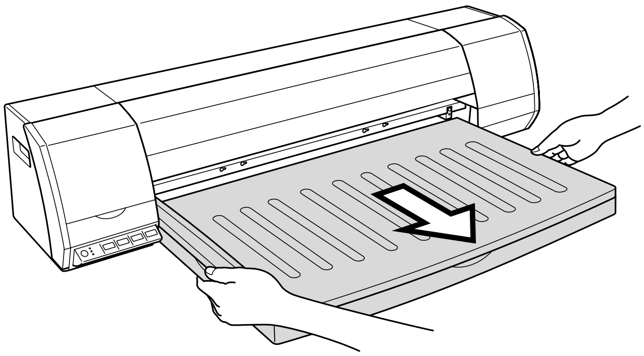


2. Attach the A2-size paper feed cassette at the location from which the paper guide table was removed. To attach the A2-size paper feed cassette, insert it fully into the printer as shown in the diagram below. After the cassette has been inserted, gently pull on it to check that it is firmly inserted.



Removing the cassette

Grasp the cassette at both sides, raise it slightly and then pull it out toward you.

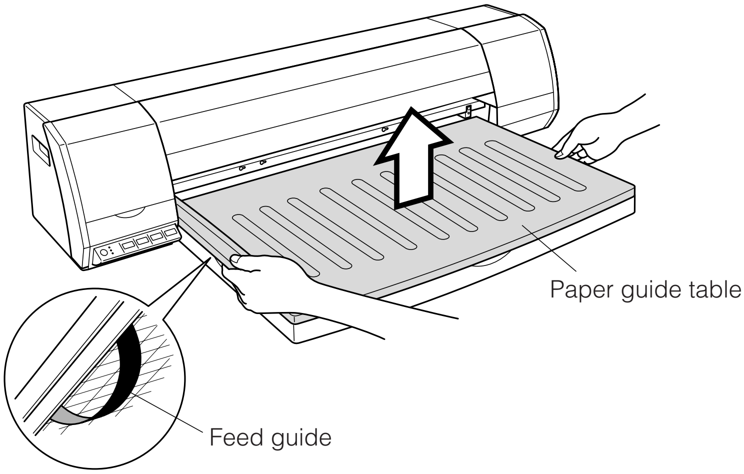


⚠ CAUTION

- **Check that the A2-size paper feed cassette has been mounted correctly. Incorrect mounting may result in a paper jam or incorrect feeding of the paper.**
- **When using the printer with the A2-size paper feed cassette attached, make sure that the printer is installed in a stable location. Moreover, make sure that the feet on the printer and on the cassette are all positioned on the desk surface.**
- **When moving the printer, be sure to remove the A2-size paper feed cassette first. Moving the printer with the cassette still attached will place an undue load on the cassette. Moreover, if the cassette falls out of the printer, there is a risk of a malfunction or injury.**

Loading paper in the A2-size paper feed cassette

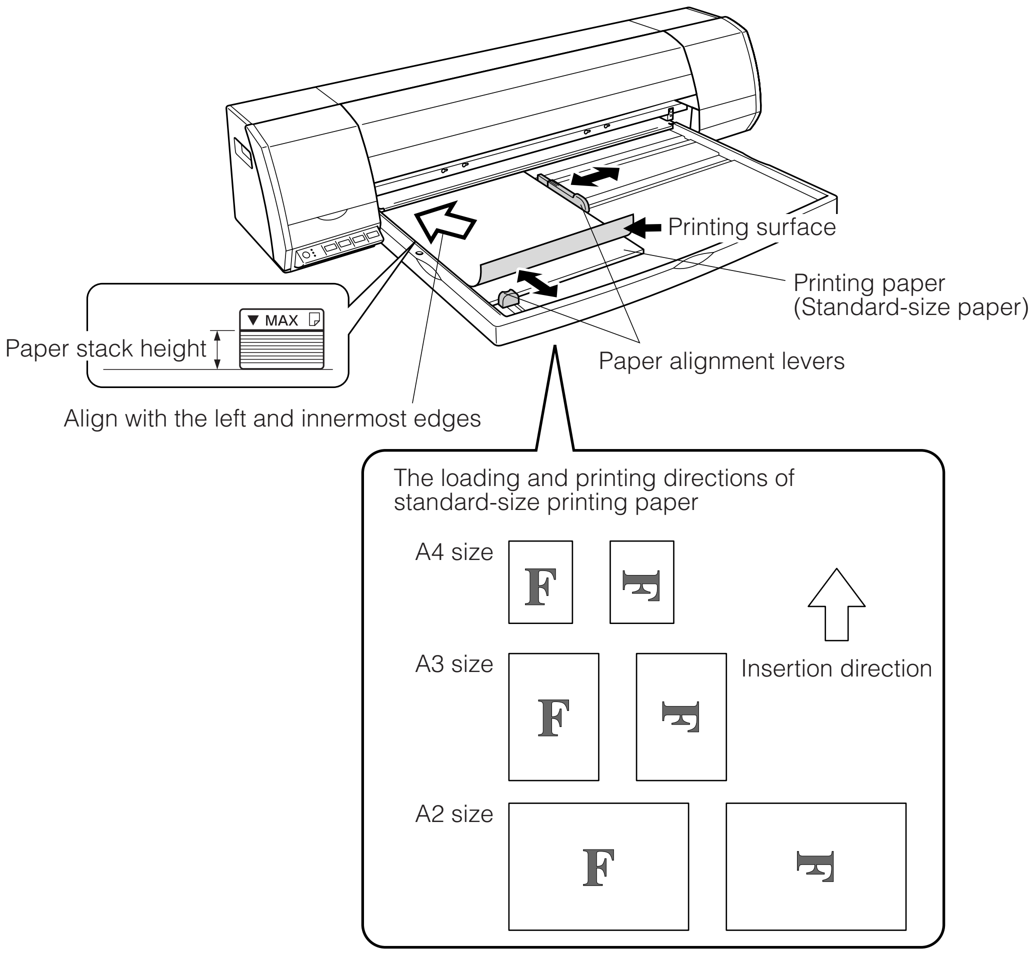
1. Lift up the paper guide table, and remove it from the cassette.



⚠ CAUTION

A feed guide is attached to the underside of the paper guide table.
Take care not to touch this feed guide.

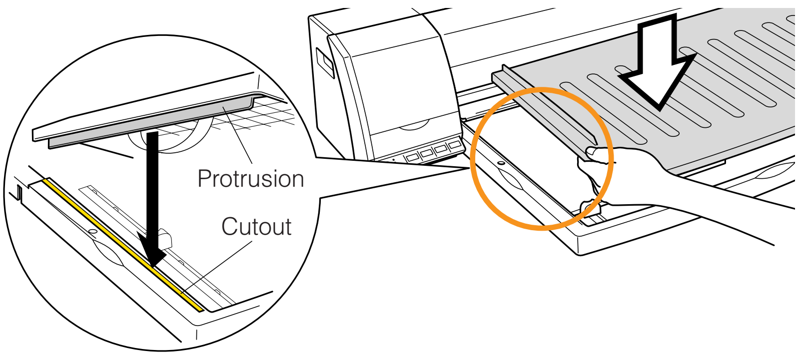
2. Check that the printing surface is face-down, and then insert the stack of printing paper (standard-size plain paper) in the stock tray. Check that the orientation of the paper is correct, and that the stack is not too high. Align the stack's left edge with the stock tray's left edge, and its top edge with the tray's innermost edge. Next, move the paper alignment levers to match the paper size, and to hold the stack in place to prevent it from shifting.
   Note: Be sure to load the paper so that the printing surface is face-down.



3. Attach the paper guide table.

IMPORTANT

Make sure that the paper guide table is attached correctly. (Check that the protrusion at the left underside of the tray is correctly fitted into the cutout at the left side of the stock tray).
Incorrect attachment of the paper guide table may result in a paper jam or in incorrect feeding of the paper.



Manual feeding

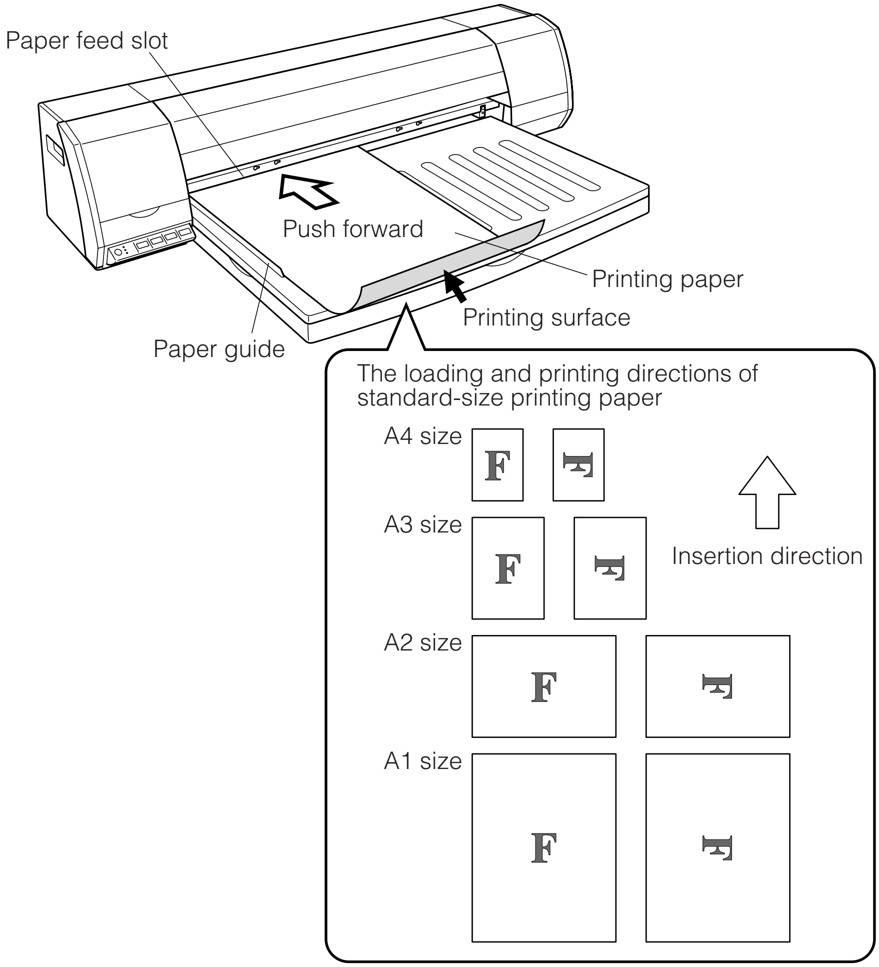
Paper can still be fed into the printer manually even if the A2-size paper feed cassette has been installed. In this case, paper that is fed manually is given priority. Insert sheets for manual feeding one at a time.

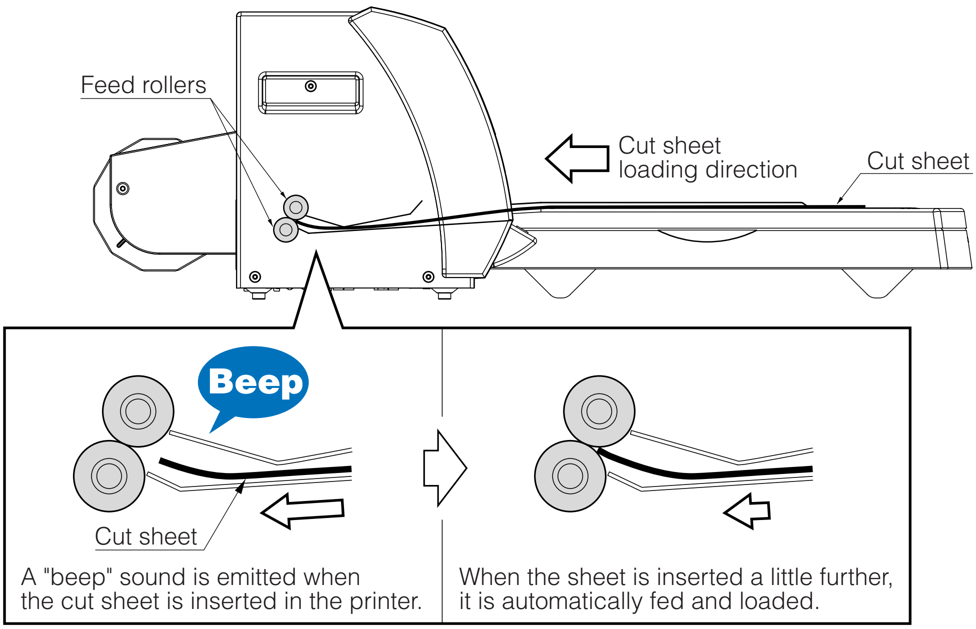
IMPORTANT

- **To obtain high quality printed results, be sure to use Graphtec-supplied paper.**
- **Make sure that the printing surface of the paper for manual feeding is face-down. When loading the paper, try to avoid touching the printing surface directly with your hands.**
  Fingerprints on the printing surface will adversely affect ink adhesion.
- **Take care not to cut your fingers on the edges of the paper.**
- **When using the manual paper feed function to perform printing, set the number of sheets for printing to "1" in the printer driver. If the number of sheets has been set to a multiple number, the paper loaded in the cassette will be used for printing the second and subsequent sheets.**

1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.
   Note: Immediately after the power is turned on, the printer performs an initialization operation. Wait until the initialization operation has been completed before proceeding with the paper loading operation.

2. Check the orientation of the sheet and that the printing surface is face-down, and then align the left edge of the sheet with the paper guide on the paper guide table.
   Next, while lightly holding down the sheet, insert its leading edge into the paper feed slot until it contacts the feed rollers inside the printer.
   A "beep" sound is emitted, and the cut sheet is loaded automatically.

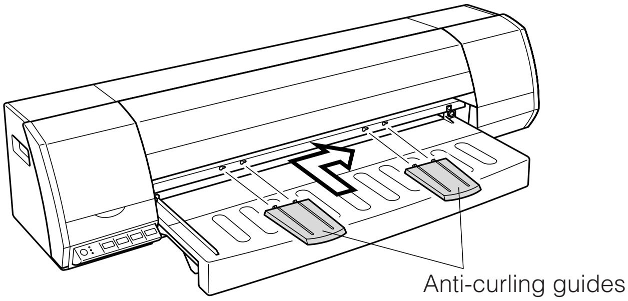




3. The cut sheet stops automatically at the printing position, and the printer is now ready to print.

3.5 Using the Anti-Curling Guides

If the paper used for printing is thin and curls up, attach the anti-curling guides before starting the printing operation. Insert the anti-curling guides into the holes provided on the printer, and then slide them to the right to lock them in place.



IMPORTANT

Be sure to attach the anti-curling guides when using thin paper such as tracing paper. If printing is performed without the guides attached, there is a risk of the leading edge being caught up in the paper feed slot at the front of the printer.

Chapter 4 Printer Driver

A printer driver is required to send data from the computer to the printer.
Be sure to install the OPS670 printer driver in the computer used to send data to your printer for printing.
The OPS670 printer driver is compatible with the following Windows operating systems:
Windows XP, Windows 2000,
Windows Millennium Edition (Me), Windows 98 Second Edition (SE)

Note: Please see the separate "Quick Start Guide" for the OPS670 driver installation procedure.

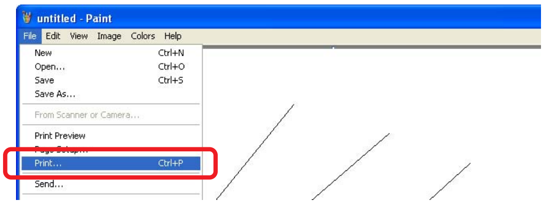
4.1 Printing from Windows

To print from a Windows application, follow the procedure described below.

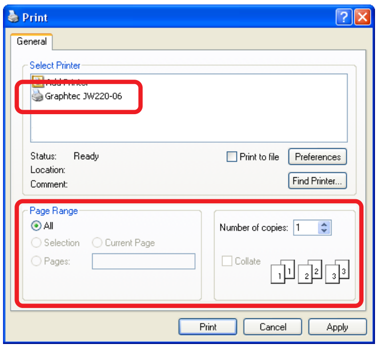
IMPORTANT

When executing a printing operation from the computer, insofar as possible close all the other applications that are not being used. If other applications are left open, there is a risk that computer processing will slow down, affecting the transfer of data for printing and causing a deterioration in the printing quality.

1. Select "Print" from the [File] menu in your application software.



2. Check that the Graphtec JW220-06 printer driver is displayed in the [Select Printer] screen.Next, specify the "Number of copies" for "Page Range".



Note: The parameters displayed in the [Print] dialog screen may vary depending on the application software used.

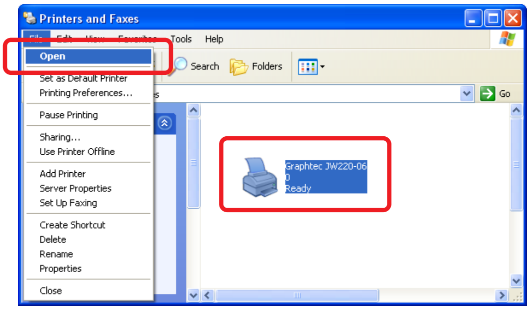
Make other settings as required. Open the Printer Settings screen from the driver's Properties dialog screen (click the "Preferences" button to open the Printer Settings screen), and use the [Base Setting], [Options] and [Graphics] tabs to make settings such as the paper type and feed method, and the print quality. For further details, see Section 4.4, "Printer Driver Functions".

3. Click the [Print] button to start printing.

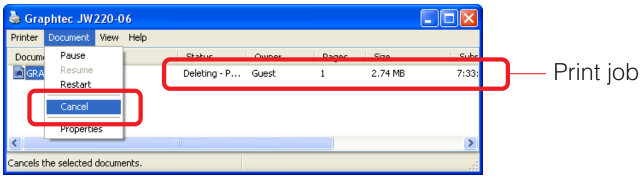
4.2 Canceling Printing in Windows

To cancel printing, follow the procedure described below.

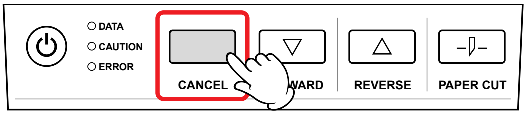
1. Open the Graphtec JW220-06 printer driver icon from the [Printers] folder.



2. Select the print job that you want to cancel, and then select [Cancel] from the [Document] menu. Check that the print job is deleted.



3. If the printer continues to process the print job and the DATA LED (green) is flashing, press the [CANCEL] button.



4. If the print job still cannot be cancelled by performing the operations described above, press the [POWER] button to turn off the power supply to the printer. Wait for at least five seconds, and then turn the power on again.

4.3 Printer Driver Capabilities

The easy-to-use OPS670 printer driver enables high quality printing of a wide range of data, from monochrome and color CAD drawings through to images such as photographs.
Moreover, the driver continuously monitors the printer status, displaying print head information via the printer information dialog screen, as well as various messages, on your computer's screen.

Main driver features

- Enables the drawing of black single-color line segments and various types of line segment settings (line width. line pitch, etc.) that are necessary for the output of CAD drawings.
- The printer status can be checked at the Printer Information dialog screen.
  - [Data Information] tab:
    Click this tab to display a list of the printer driver settings.
  - [Printer Information] tab:
    Click this tab to display print head and ink cartridge information. Click the [Refresh] button to display the most recent printer information.
  - [Maintenance] tab:
    Click this tab to perform print head cleaning and alignment.
  - Message display:
    Displays the printer status when an error has occurred, or when a job is being output.

Compatible Operating Systems

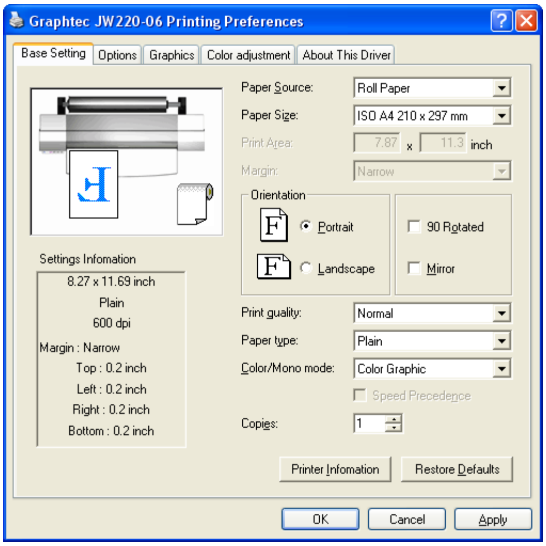
The OPS670 printer driver is compatible with the following Windows operating systems:
Windows XP, Windows 2000,
Windows Millennium Edition (Me), Windows 98 Second Edition (SE)

4.4 Printer Driver Functions

Note: The Windows XP environment is used for the screens in the explanations.

[Base Setting] tab

Use this tab to make basic printer-related settings such as Print quality, Paper Source, and Paper Size.



Paper Source	Use this parameter to specify the printer's paper source. Select either "Roll Paper" or "Cut Sheet". Make sure that the paper loaded in the printer (roll paper or cut sheet) is the same as the setting specified in the driver.
Paper Size	Use this parameter to specify the size of the paper that will actually be used for printing. Either select a standard paper size or specify your desired paper size. For long-length prints or other special applications where there is no
Print Area	The actual printing or output area is displayed here. The displayed size represents the print size after the print margins have been subtracted.
Margin	Use this parameter to specify the print margins (the areas where printing cannot be performed). If "Roll Paper" has been specified for "Paper Source", this parameter is displayed in gray and the margins are a fixed size. • Roll Paper Leading: trailing, and left/right edges: All 5 mm If "Cut Sheet" was selected for the paper source, select either "Narrow" or "Wide". • Cut Sheet (Narrow): Leading, trailing, and left/right edges: All 5 mm • Cut Sheet (Wide): Leading edge: 5 mm, trailing edge: 13 mm, left/right edges: 5 mm
Orientation	Select the orientation to suit the direction in which the paper is loaded. Use the drawing of the printer at the left of the screen to check the orientation.

90 Rotated Mirror	Use these parameters to print the image rotated 90 degrees or as a mirror image. Use the direction of the "F" symbol in the drawing of the printer at the left of the screen to check the rotation.
Print quality	Use this parameter to specify the print quality. Select from "High-speed", "Normal", and "High quality" • High-speed: The printing speed takes priority. This setting is suitable for check printing. • Normal: Printing is performed at normal speed and quality. • High quality: The printing quality takes priority. The slower the print speed, the higher the printing quality.
Paper type	Use this parameter to specify the paper type that you plan to use. For optimal results, make sure that the paper type selected matches the paper that is loaded in the printer.
Color/ Mono mode	Use this parameter to specify monochrome or color printing, and the type of application. Select from "Color drawing", "Color graphic", "Monochrome drawing", and "Monochrome graphic". • "Color drawing", "Monochrome drawing" Use these settings when outputting CAD drawings, text data, and so forth. • "Color graphic", "Monochrome graphic". Use these settings when outputting data with a lot of solid-fill areas, such as photos or computer graphics data.
Speed Precedence	Use this parameter to specify the printing speed. ☐ Speed Precedence The print quality takes precedence. However, the printing speed is slow. To give even more priority to the print quality, select [Base Setting] tab >"Print quality" > "High quality". ☑ Speed precedence The printing speed takes precedence. However, depending on the content, the printing quality may be a little coarse. To give even more priority to the printing speed, select [Base Setting] tab >"Print quality" > "High-speed". The "Speed Precedence" parameter can only be specified for the following setting conditions. • "Print quality" > "Normal" • "Paper type" > "Plain" • "Color/Mono mode" >"Monochrome drawing"
Copies	Use this parameter to specify the number of copies to be printed.
Printer Information	Click the [Printer Information] button to open the [Printer Information] dialog screen. The Printer Information] dialog screen is used to display information relating to the print heads and ink, as well as to perform printer maintenance. For further details, see Section 4.5, "Printer Information Button".
Restore Defaults	Click the [Restore Defaults] button to return all the [Base Setting] tab settings to their default values.

IMPORTANT

Notes on the printer driver settings and the printing quality.
If "Speed Precedence" has been selected as shown in <Printer driver setting "Speed Precedence"> below, depending on the type of data and the paper used, the printing may be a little uneven in places.

<Printer driver setting "Speed Precedence">

- **[Base Setting] tab > "Print quality" > "High-speed"**
- **[Base Setting] tab > "Speed precedence" > "Checkbox checked"**

In these cases, since speed takes precedence during printing, the printing quality may be a little coarse, making it suitable for check prints only.
To even out the printing, make the "Speed Precedence" settings shown below and then perform printing.

<Printer driver setting "Speed Precedence">

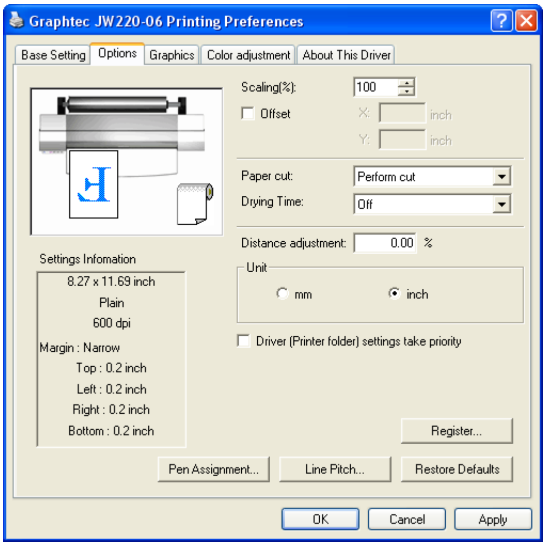
- **[Base Setting] tab > "Print quality" > "High quality" or "Normal"**
- **[Base Setting] tab > "Speed precedence" > "Checkbox unchecked"**

If satisfactory image quality cannot be obtained even after making the above settings, perform print head*1 and maintenance station*2 cleaning.
If the printer is used as is, there is a risk of shortening the life of the print heads.
Do not continue to use the printer in this status.

*1 Print head cleaning
(See Section 5.3, "Print Head Cleaning and Alignment" in this manual.)
*2 Maintenance station cleaning
(See Section 5.7, "Cleaning the Maintenance Station" in this manual.)

[Options] tab

Use this tab to make settings such as Scaling and Offset, and to select whether or not to cut the paper after printing.

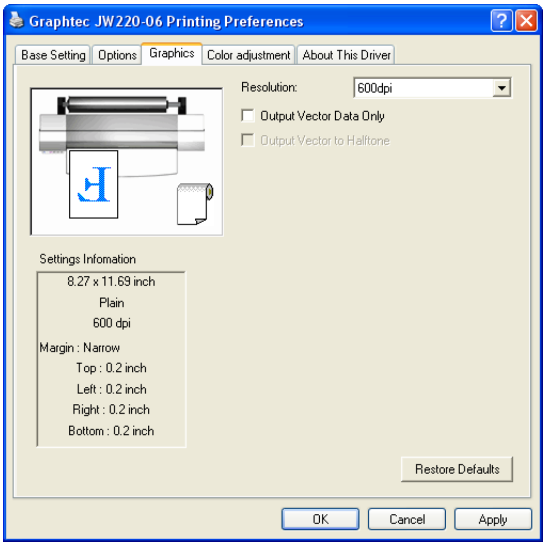


Scaling	Use this parameter to specify the scaling ratio. Printing is normally performed at the 100% setting. The Scaling setting can be made in the 25 to 400% range, in 1% units. Examples To enlarge an A2-size image to A1-size, specify 141%. To reduce an A1-size image to A2 size, specify 70%.
Offset	Use this parameter to move the printing origin. If a check is inserted in the "Offset" checkbox, the new origin position can be specified by entering values in the X and Y directions, in 0.1-mm increments.
Paper cut	Use this parameter to select whether or not to perform cutting of the paper after a printing operation. Select either "Perform cut" or "No cut". This parameter can only be specified when the paper source is "Roll Paper".
Drying Time	Use this parameter to specify the length of time between data output operations.
Distance adjustment	Use this parameter to adjust the distance in the paper feed direction. If the paper type, thickness or other factors cause a discrepancy in the paper feed distance to occur, enter a corrective value. The corrective value can be set in the range from -3.00% to +3.00%, in increments of 0.01%. Example If a 1 m (1000 mm) line segment is printed as 995 mm, set a corrective value of 0.5%. (1000 - 995) __ 1000 x 100 (%) = 0.5%

Unit	Use this parameter to specify the display unit. Select either "mm" or "inch".
Driver (Printer folder) settings take priority	If this checkbox is checked, printing is performed using the driver settings that were set in the Printer folder and changes cannot be made from the application software.
Register	Click this button to save the driver settings to a file, and to load saved settings.
Pen Assignment	Use this button when you want to change the color/line width of colors displayed on the screen. Depending on the application software, it may not be possible to make this setting.
Line Pitch	The line pitch can be specified as a dotted line, dashed line, dot-dashed line, or double-dot-dashed line. Depending on the application software, it may not be possible to make this setting.
Restore to Defaults	Click this button to restore the [Option] tab settings to their default values.

[Graphics] tab

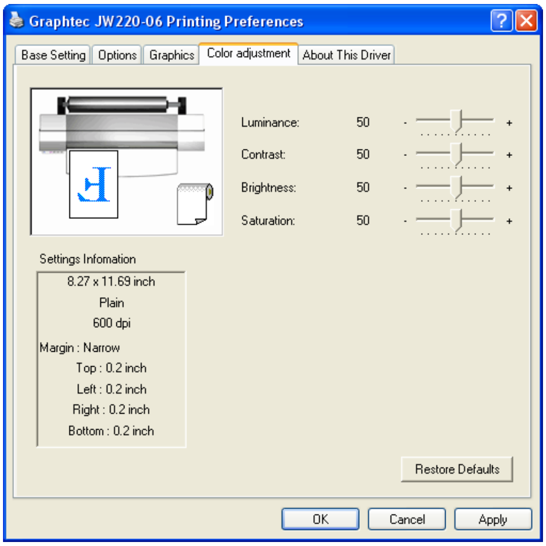
Use this tab to make settings related to the processing of data for printing.



Resolution	Use this parameter to specify the printing resolution. The printing quality improves proportionately as the numerical value is raised. The upper limit of the value that can be specified for the resolution depends on the "Print quality" setting that was selected in the [Base Setting] tab. If printing is not performed satisfactorily such as in the cases listed below, lower the resolution value to enable printing. • Large text and large data files cannot be printed. • Only part of the data is printed.
Output Vector Data Only	This parameter enables fast printing of drawings (mainly CAD drawings where the lines, text and so forth are drawn using vector data), However, raster data such as photographs or images cannot be printed. Moreover, with some drawings, data such as solid-fill data may be defined by the application software as raster data. If this is the case, remove the check from the checkbox.
Output Vector to Halftone	This parameter enables vector data to be printed as grayscale data. This setting can be used when "Monochrome drawing" or "Monochrome graphic" has been selected for "Color/Mono mode" in the [Base Setting] tab.
Restore Defaults	Click this button to restore all the [Graphics] tab settings to their default values.

[Color adjustment] tab

Use this tab to make color-related settings for a printing operation.



Luminance	Use this parameter to adjust the shading of light areas.
Contrast	Use this parameter to adjust the difference between the light and dark areas.
Brightness	Use this parameter to adjust the overall shading.
Saturation	Use this parameter to adjust the hue of intermediate color areas. This setting can be specified when "Color Drawing" or "Color Graphic" has been selected for "Color/Mono mode" in the [Base Setting] tab.
Restore Defaults	Click this button to return all the [Color adjustment] tab settings to their default values.

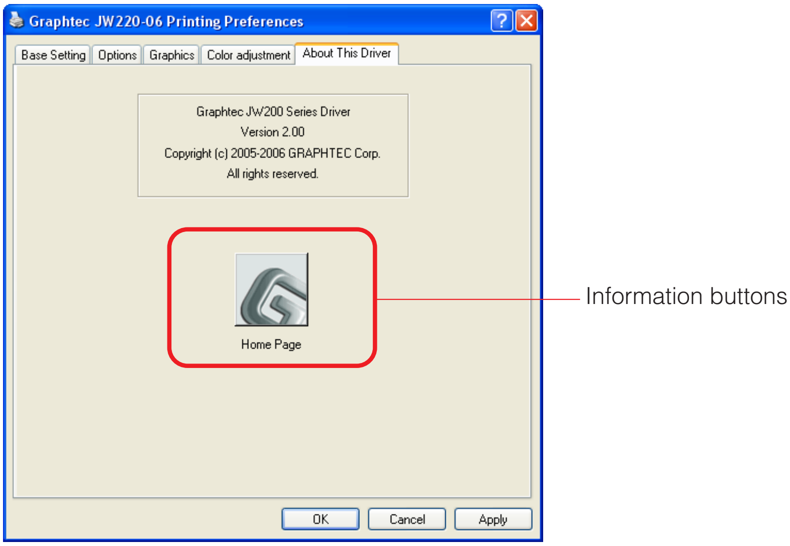
[About This Driver] tab

The printer version information is displayed in this screen.

The information buttons displayed under the printer version information provide various other useful functions such as a link to the Graphtec web site, checking information related to your printer, and downloading of the most recent driver.

Be sure to make effective use of these buttons.

Note: To access the Graphtec web site, your computer must be connected to the Internet.

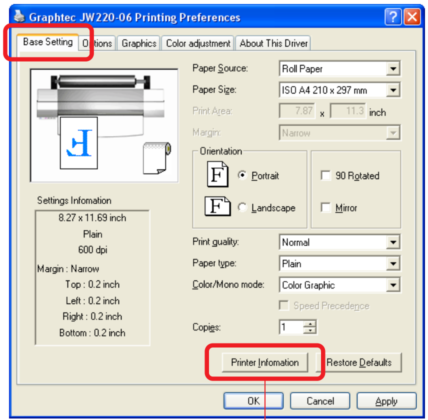


4.5 Printer Information Button

Click the [Printer Information] button to open the [Printer Information] dialog screen. This dialog screen is used to display various types of information for the print heads and cartridges and also to perform print head maintenance*.

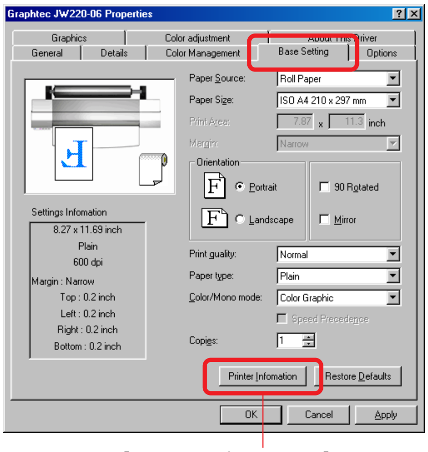
*This function is enabled when the printer is in the power-on status.

Windows XP / Windows 2000



[Printer Information] button

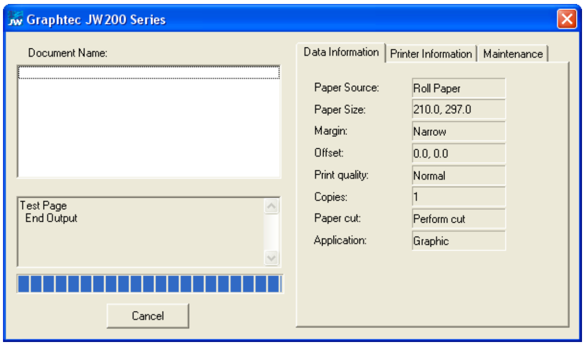
Windows Me / Windows 98SE



[Printer Information] button

[Data Information] tab

Click this tab to display a list of the printer driver settings.

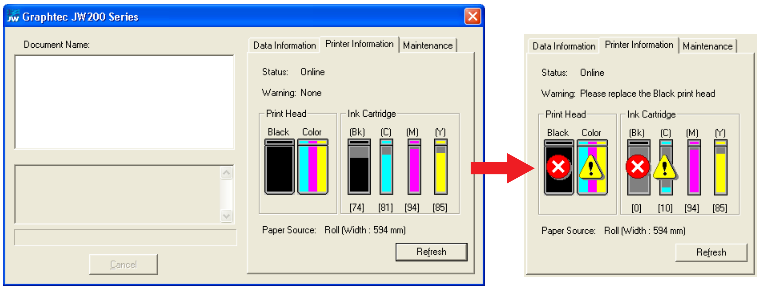


[Printer Information] tab

Click this tab to display images showing the print head replacement time and the amount of ink remaining in the ink cartridges. When a print head's replacement time is near or when there is only a little ink remaining in an ink cartridge, a "warning mark" is displayed on the relevant image to indicate that it is time to replace that print head or ink cartridge.

If a warning mark is displayed, prepare a new print head (or ink cartridge) for replacement, and then replace the indicated print head (or ink cartridge) with the new one as soon as possible.

Click the [Refresh] button to display the most recent printer information.

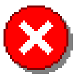


Display of warning and replacement marks



Warning mark

- The indicated print head's replacement time is near. Have a new print head ready for replacement.
- The amount of ink remaining in the cartridge is low. Have a new cartridge ready for replacement.



Replacement mark

- The indicated print head must be replaced.
- The indicated ink cartridge must be replaced.

The print heads and ink cartridges are consumable items. Check the information displayed on the [Printer Information] tab and have new print heads and ink cartridges ready at hand before the current ones are used up.

IMPORTANT

[Notes on the Print Head and Ink Cartridge]

The print head and the ink cartridge replacement time are displayed on the [Printer Information] tab.

A "warning mark" is displayed when a replacement time is near, and a "replacement mark"[*1] is displayed when a replacement time has been reached.

For the print head, to maintain image quality, we recommend that you replace the indicated print head with a new print head as soon as possible after a “warning mark” is displayed.

For the ink cartridge, to maintain image quality, we recommend that you use the ink completely within half a year after an ink cartridge has been opened.

Print head replacement guidelines :

- **Black print head: One with short period either within one year after you buys it or when four black ink cartridges has been used.**
- **Color print head: One with short period either within one year after you buys it or when two color ink cartridges has bee used for the most frequently used color.**

*1 Correct print head and ink cartridge performance are not guaranteed up to the time that the “replacement mark” is displayed.

⚠ CAUTION

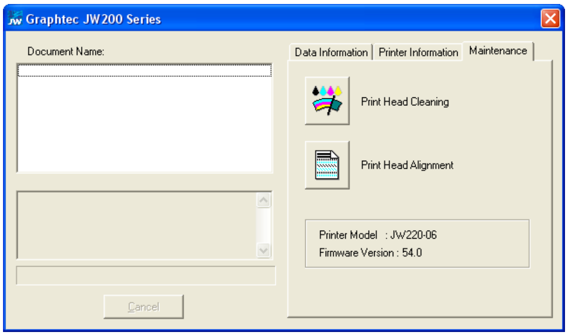
- **Be sure to replace the print head promptly when the replacement mark is displayed. Continuing to use the printer without replacing the indicated print head may cause a malfunction.**
- **Printing is halted to protect the print head when a replacement mark is displayed for an ink cartridge. Replace the indicated cartridge. Printing can be restarted after the cartridge has been replaced.**

CHECKPOINT

See Chapter 5, "Maintenance" for details on how to replace the print heads and ink cartridges.

[Maintenance] tab

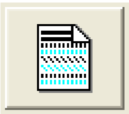
If the printing is scratchy or uneven, or if you are not satisfied with the printing quality, use the [Maintenance] tab to perform printer maintenance. In addition, the [Maintenance] tab can be used to check the printer's firmware version.





[Print Head Cleaning] button

Click this button to print a test pattern and perform print head cleaning.



[Print Head Alignment] button

Click this button to print a test pattern and to automatically adjust the alignment of the print heads.



The printer model and printer version are displayed here.

CHECKPOINT

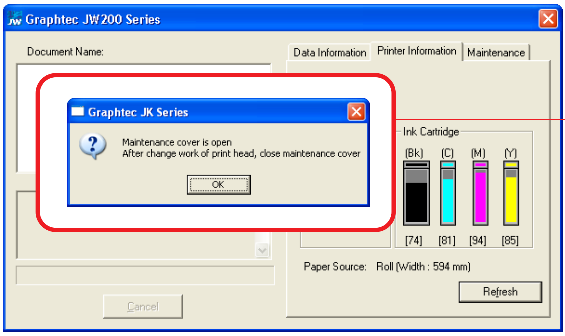
See Chapter 5, "Maintenance" for details on how to perform printer maintenance.

4.6 Message Displays

When the printer requires some action to be taken, a message is displayed in the [Printer Information] dialog screen that appears on your computer screen. If a message is displayed, check the contents of the message and then take appropriate action.

The messages that are displayed mainly concern the following items.

- Messages relating to paper
- Messages relating to the print heads/ink cartridges
- Messages relating to the printer's covers



CHECKPOINT

- **See Chapter 6, "What to Do When This Happens" for details on the message contents and the actions that are required.**
- **Click the [Refresh] button to display the most recent printer information.**

Chapter 5 Maintenance

5.1 Checking the Printer Information

[Printer Information] dialog screen

The [Printer Information] dialog screen is used to display various types of information for the print heads and cartridges, and also to perform print head maintenance.*

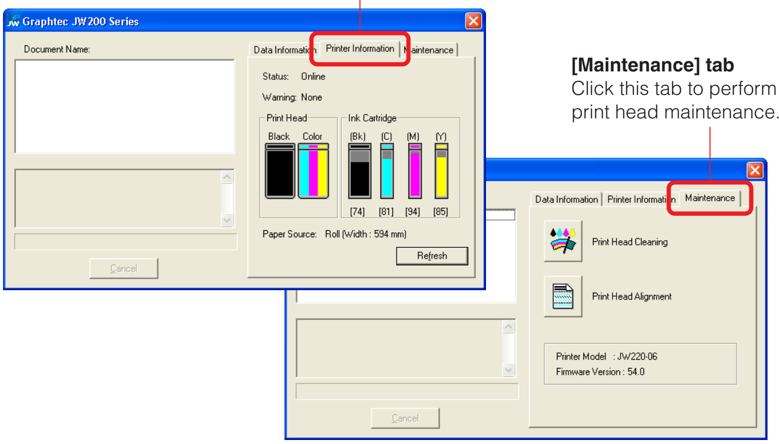
* This function is enabled when the printer is in the power-on status.

CHECKPOINT

Click the [Refresh] button to display the most recent printer information.

[Printer Information] tab
Click this tab to display print head and cartridge information.

[Maintenance] tab
Click this tab to perform print head maintenance.

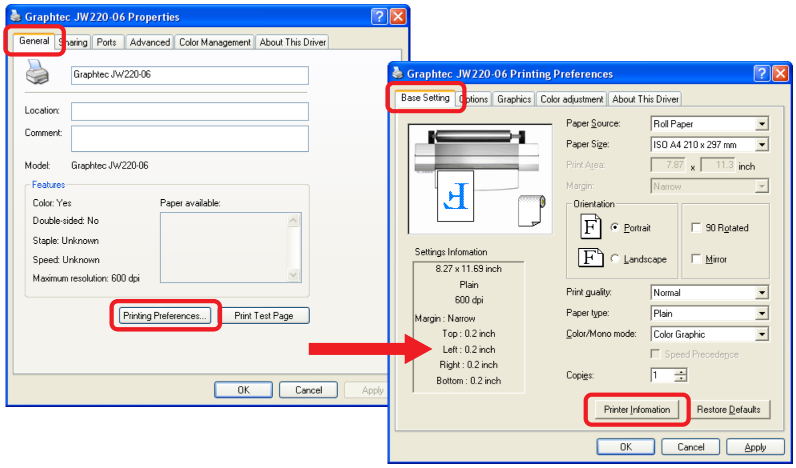


Launching the [Printer Information] dialog screen

When using Windows XP/Windows 2000

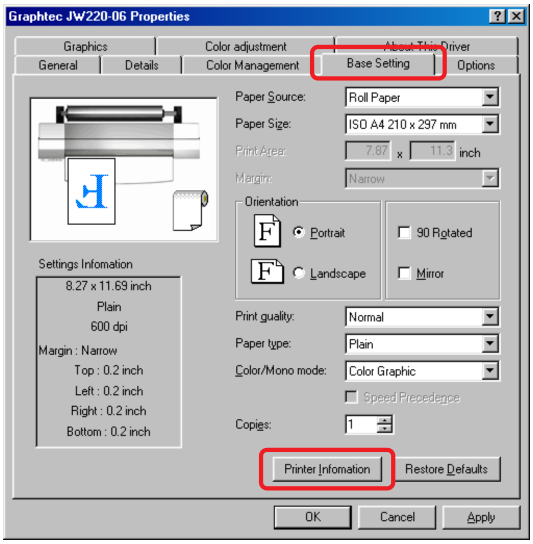
Click the [Print Settings] button on the [General] tab.

Next, click the [Printer Information] button on the [Base Setting] tab.



When using Windows Me/Windows 98SE

Click the [Printer Information] button on the [Base Setting] tab.

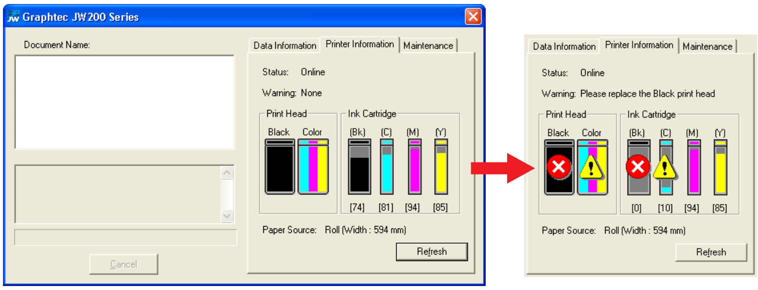


5.2 Replacing the Print Heads and Ink Cartridges

Checking the print heads and ink cartridges

The [Printer Information] tab can be used to check the print head replacement time and how much ink is remaining in the ink cartridges.

A "warning mark" is displayed for a print head when its replacement time is near, and for an ink cartridge when there is only a little ink remaining in the cartridge, to indicate that the print head or ink cartridge needs to be replaced.



Display of warning and replacement marks



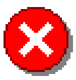
Warning mark

If displayed for a print head

- The indicated print head's replacement time is near. Have a new print head ready for replacement.

If displayed for an ink cartridge

- The amount of ink remaining in the cartridge is low. Have a new cartridge ready for replacement.



Replacement mark

If displayed for a print head

- The indicated print head must be replaced. If it is not replaced, a malfunction may occur.

If displayed for an ink cartridge

- Printing is halted to protect the print head. Replace the indicated cartridge. Printing can be restarted after the cartridge has been replaced.

IMPORTANT

[Notes on the Print Head and Ink Cartridge]

The print head and the ink cartridge replacement time are displayed on the [Printer Information] tab.

A "warning mark" is displayed when a replacement time is near, and a "replacement mark"[*1] is displayed when a replacement time has been reached.

For the print head, to maintain image quality, we recommend that you replace the indicated print head with a new print head as soon as possible after a "warning mark" is displayed.

For the ink cartridge, to maintain image quality, we recommend that you use the ink completely within half a year after an ink cartridge has been opened.

Print head replacement guidelines :

- **Black print head: One with short period either within one year after you buys it or when four black ink cartridges has been used.**
- **Color print head: One with short period either within one year after you buys it or when two color ink cartridges has bee used for the most frequently used color.**

*1 Correct print head and ink cartridge performance are not guaranteed up to the time that the “replacement mark” is displayed.

Replacing the print heads

Be sure to observe the following precautions when replacing a print head.

⚠ CAUTION

- **As a safety precaution, store print heads in a location out of the reach of small children.**
- **If ink is licked or ingested accidentally, consult a doctor immediately.**

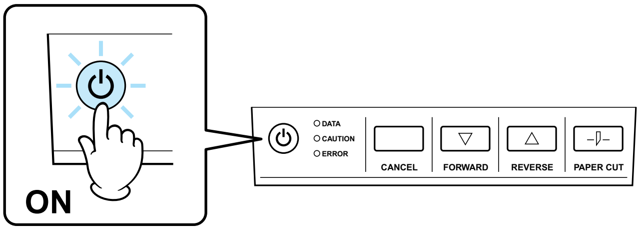
IMPORTANT!

- **Be sure to use only the Graphtec print heads designed for the JW220 printer (part numbers IH-90001BK, and IH-90002CMY).**
- **Do not touch the metallic parts of the print head or the print head section itself. Such actions will adversely affect the printing. Moreover, there is a risk of damage to the print head from static electricity.**
- **Do not drop or shake the print heads or ink cartridges. Such actions may cause the ink to leak or spatter, with the risk of staining your surroundings and clothing. Moreover, the head section may become damaged, making the print head unusable.**
- **Make sure that the printer is in the power-on status when replacing a print head. Replacing a print head when the printer has been turned off may cause the print head to malfunction.**

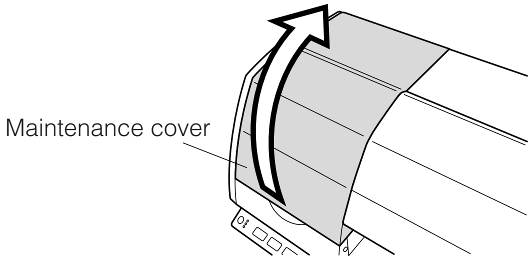
Print head replacement procedure

Note: The replacement procedure for the black print head is used as an example.

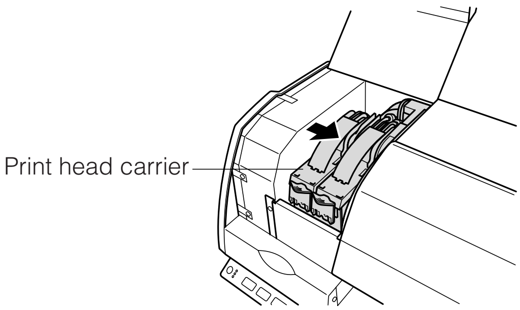
1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.



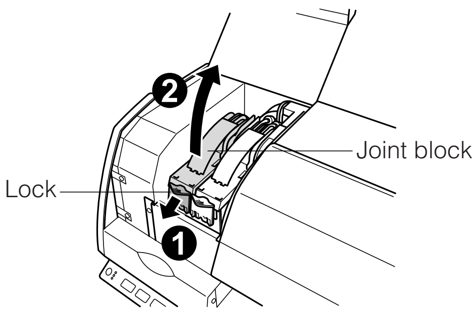
2. Open the maintenance cover at the left-hand side of the printer.



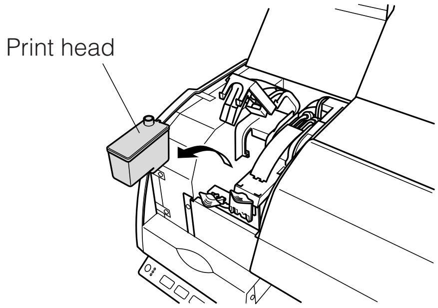
3. The print head carrier moves to the print head replacement position.



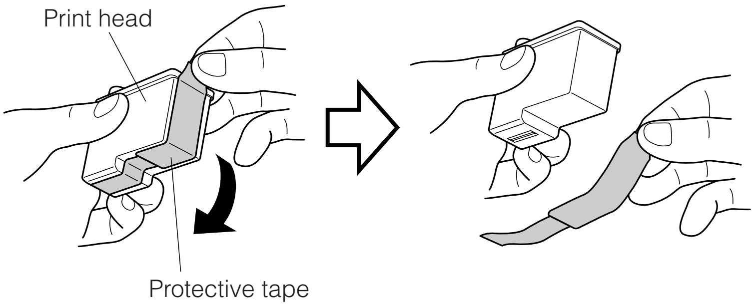
4. Press down on the lock to open the joint block.



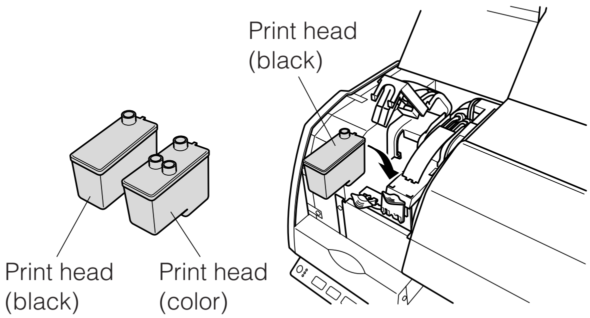
5. Lift up the print head to remove it.



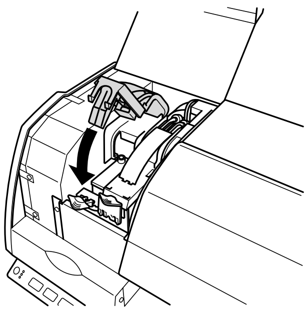
6. Prepare a new print head for replacement by removing the protective tape.



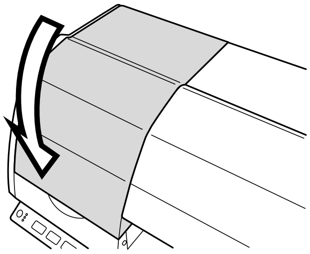
7. Mount the new print heads.
   Mount the black print head in the left-hand holder.
   Mount the color print head in the right-hand holder.



8. Press down on the joint block until it makes an audible click.



9. Gently close the maintenance cover.



This completes the print head replacement procedure.

10. Perform the print head alignment procedure before starting a printing operation.
    For further details, see Section 5.3, "Print Head Cleaning and Alignment".

CHECKPOINT

The printer driver can be used to check the print head information.
For further details, see Chapter 4, "Printer Driver".

Replacing the ink cartridges

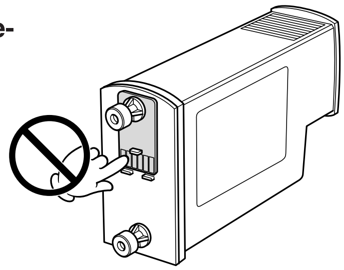
Be sure to observe the following precautions when replacing an ink cartridge.

⚠ CAUTION

- **As a safety precaution, store ink cartridges in a location out of the reach of small children.**
- **If ink is licked or ingested accidentally, consult a doctor immediately.**

IMPORTANT

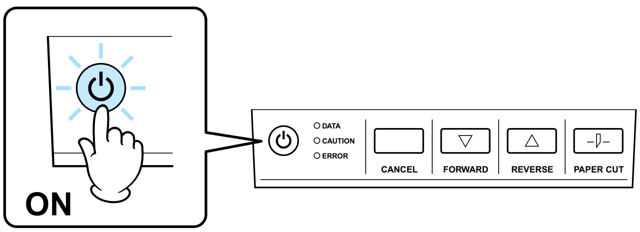
- **Be sure to use only the Graphtec ink cartridges designed for the JW220 printer (part numbers IJ-90001BK, IJ-90001C, IJ-90001M, and IJ-90001Y).**
- **Do not touch an ink cartridge's printed circuit board. Such action will adversely affect the printing. Moreover, there is a risk of damage to the ink cartridge from static electricity.**



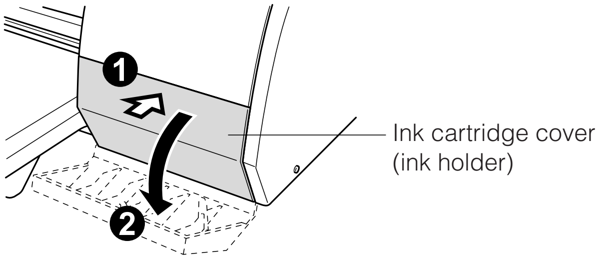
- **Do not drop or shake the ink cartridges. Such actions may cause the ink to leak or spatter, with the risk of staining your surroundings and clothing.**
- **Before mounting an ink cartridge, make sure that the print heads have already been mounted.**
- **There are four types of ink cartridges: black (BK), cyan (C), magenta (M) and yellow (Y). Check the replacement ink cartridge's position in the ink holder before mounting it, and be sure to mount it correctly.**
- **Make sure that the printer is in the power-on status when replacing an ink cartridge. Replacing an ink cartridge when the printer has been turned off may cause the cartridge to malfunction.**
- **Do not leave an ink cartridge that has been removed from the printer lying around for an extended period of time. Doing so may cause ink deterioration, inferior print quality, or clogging of the print head nozzles.**

Ink cartridges replacement procedure

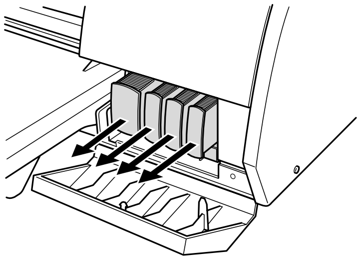
1. Press the printer's [POWER] button to turn on the printer.
   Check that the [POWER] button LED lights blue.



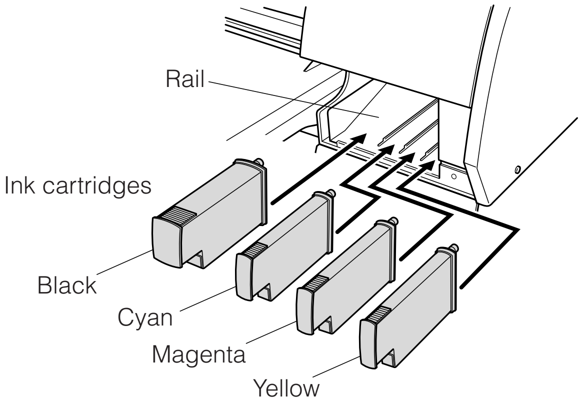
2. Open the ink cartridge cover at the right-hand side of the printer.



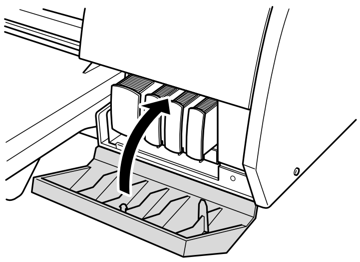
3. Grasp the ink cartridge that you want to replace and pull it out by sliding it along its corresponding rail on the ink holder.



4. Align the new cartridge with its corresponding rail on the ink holder, and then insert it gently until it clicks into place. At this time, check the color of each ink cartridge and make sure that the new cartridge is inserted at the correct position.



5. Gently close the ink cartridge cover.



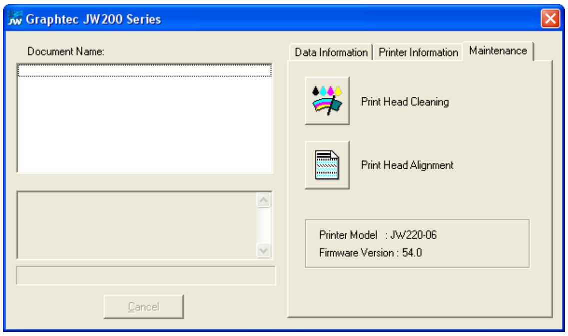
This completes the ink cartridge replacement operation.

CHECKPOINT

The printer driver can be used to check the status of the ink cartridges. For further details, see Chapter 4, "Printer Driver".

5.3 Print Head Cleaning and Alignment

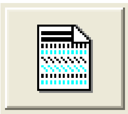
The [Maintenance] tab can be used to perform print head maintenance. Perform print head maintenance if the printing is scratchy, uneven or otherwise unsatisfactory.





[Print Head Cleaning] button

Click this button to print a test pattern, and to perform print head cleaning.



[Print Head Alignment] button

Click this button to print a test pattern and to automatically adjust the alignment of the print heads.

Perform print head alignment whenever a print head is mounted (re-placed).

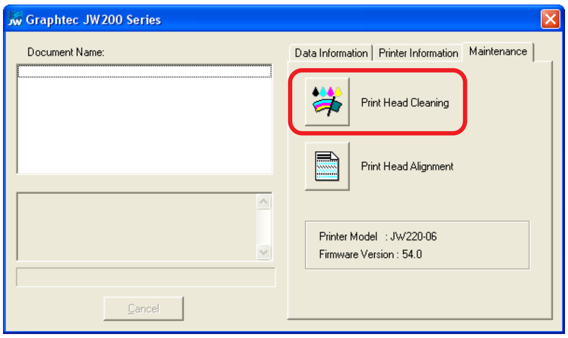
IMPORTANT

- **Use plain white paper for the print head alignment procedure.**
- **If using a cut sheet, use a new sheet of paper that is at least A4 size, and load it in the vertical direction.**

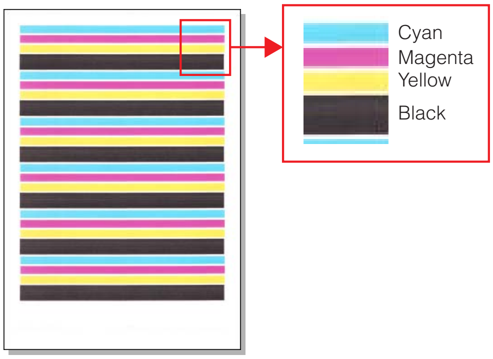
Cleaning the Print Heads

1. Check that paper has been loaded correctly in the printer.
   * Note: If using a cut sheet, use a new sheet of paper that is at least A4 size, and load it in the vertical direction.

2. Click the [Print Head Cleaning] button on the [Maintenance] tab.



3. The printer prints out a test pattern, and then proceeds to perform print head cleaning.
   Note: The test pattern is printed in the order Cyan, Magenta, Yellow and Black, starting from the top.



4. When the print head cleaning operation has been completed, print out some data such as a drawing or text to check that the printing quality has improved.

CHECKPOINT

If there is no improvement in the printed results, perform the "wiping the print heads" procedure.

IMPORTANT

[Points to note about the printed test pattern]
In the test pattern printed out for the print head cleaning operation, there may be some very fine white stripes in the solid-fill areas. These stripes do not indicate a malfunction, and we ask for your understanding.
Check the solid-fill areas for the conditions described below. If the image quality is adversely affected, clean the print heads[*1] and the maintenance station[*2].

Conditions to check for:

- **Considerably uneven printing in the solid-fill areas**
- **A large number of white streaks in the solid-fill areas**

If the print heads are used when either of these conditions has been detected, the print head life will be considerably shortened. Do not continue using the print heads without performing cleaning.

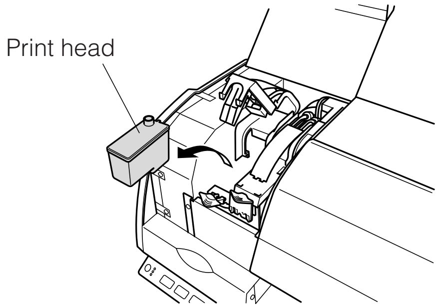
*1 Print head cleaning
   (See "Wiping the print heads" in Section 5.3, "Print Head Cleaning and Alignment" in this manual.)

*2 Cleaning the Maintenance Station
   (See Section 5.7, "Cleaning the Maintenance Station" in this manual.)

Wiping the print heads

If there is no improvement in the printed results after the print head cleaning operation described in the previous section has been performed, wipe off the ink from the print head nozzles.

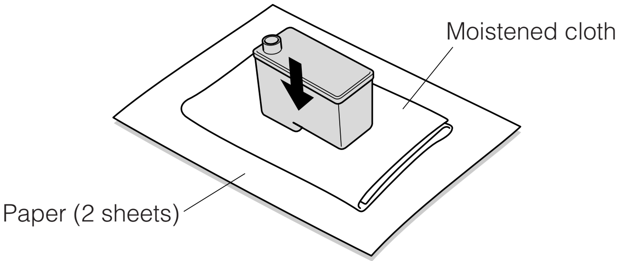
1. Remove the print heads from the printer.
   See Section 5.2, "Replacing the Print Heads and Ink Cartridges", and follow steps 1 to 5 in the "Replacing the print heads" subsection.



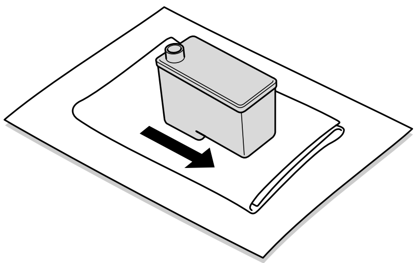
2. Moisten a clean cloth with warm water.

3. Place two sheets of paper on a table or other flat surface, and then lay the moistened cloth on top the paper, making sure that it is flat.

4. Lightly press the surface of the print head nozzles against the cloth for approximately three seconds.



5. Move the print head gently on top of the cloth, in the direction indicated by the arrow in the figure so that the ink on the surface of the nozzles is wiped off.



6. Move the print head to a clean area of the cloth, and repeat steps 4 and 5.

7. Mount the print head in the printer.
   See Section 5.2, "Replacing the Print heads and Ink Cartridges", and follow steps 7 to 11 in the "Replacing the print heads" subsection.

8. Perform print head cleaning. See "Print Head Cleaning" in the previous section.

CHECKPOINT

If printing is still scratchy or uneven even after print head cleaning has been performed, replace the print head with a new one.

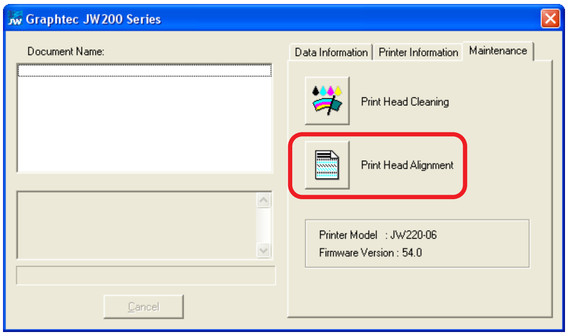
Aligning the print heads

IMPORTANT

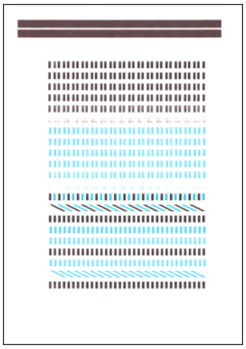
- **Use plain white paper for the alignment procedure.**
- **If using a cut sheet, use a new sheet of paper that is at least A4 size, and load it in the vertical direction.**

1. Check that the paper for printing has been loaded correctly.

2. Click the [Print Head Alignment] button on the [Maintenance] tab.



3. The printer prints a test pattern, and then automatically aligns the print head positions.



CAUTION

Ink ejection adjustment is performed during the print head alignment operation. For this reason, scratchy areas may appear in the printed test pattern, but these do not indicate a malfunction.

4. When the print head cleaning operation has been completed, print out some data such as a drawing or text to check that the printing quality has improved.

If there is no improvement in the printed results, perform the print head alignment operation once again. If the printing quality does not improve even after the print head alignment operation has been performed several times, replace the print head.

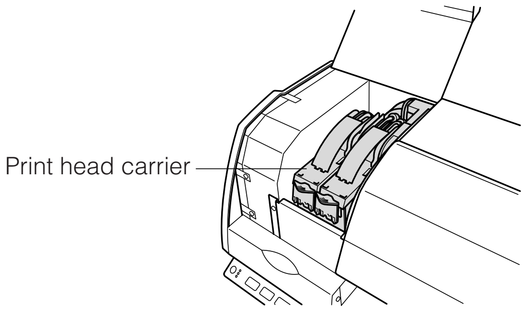
5.4 Handling the Print Heads

To maintain optimal print head printing quality, be sure to observe the following precautions.

• Do not touch the metallic parts of the print head or the print head section itself.

• When the power supply to the printer has been turned off, make sure that the print heads are at the maintenance station position (at the very left of the printer).

If the print heads are not at the maintenance station position, turn on the printer. The print heads will then return automatically to the maintenance station. After they have returned to the maintenance station, turn the printer off again.



• If the printer has not been used for over one week, perform print head cleaning before using the printer. (See Section 5.3, "Print Head Cleaning and Alignment" in this manual.)

• Clean the maintenance station at regular intervals. (See Section 5.7, "Cleaning the Maintenance Station" in this manual.)

• Be sure to use Graphtec-specified paper. (See Section 3.1, "Usable Paper Types" in this manual.)

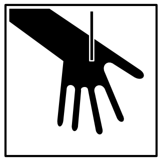
• Do not perform any unnecessary print head removal or mounting operations. Print head removal and mounting operations should only be performed when print head replacement is required.

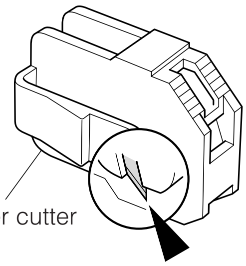
5.5 Replacing the Roll Paper Cutter

The roll paper cutter is used to automatically cut across the roll paper after printing has been completed, and also to cut the roll paper at any desired time.
If the roll paper is not cut cleanly, replace the roll paper cutter.

⚠ CAUTION

- **When replacing the roll paper cutter, take care not to cut your fingers or other parts of your body on the roll paper cutter blade.**
- **When replacing the roll paper cutter, do not touch any of the internal components in the printer other than the cutter holder.**





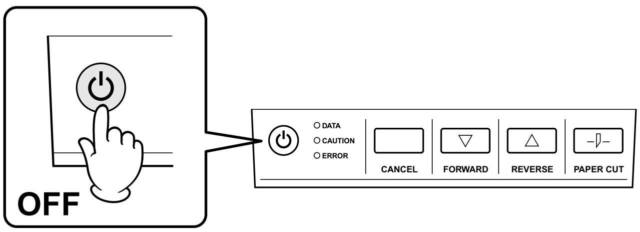
Note: The roll paper cutter is a consumable item.

IMPORTANT

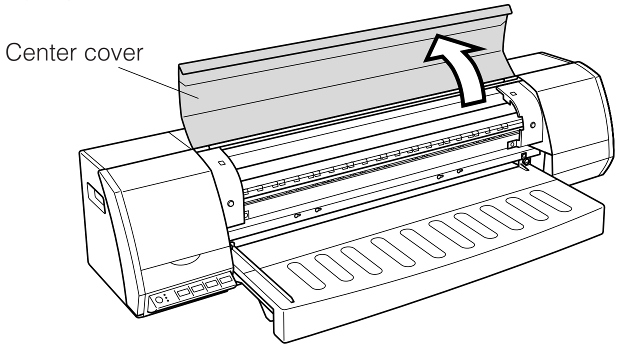
- **Be sure to use the Graphtec roll paper cutter (Part no. CT03U) that has been specifically designed for use with the JW220 printer.**
- **When replacing the roll paper cutter, do not touch any of the internal components in the printer other than the cutter holder.**
- **Do not wipe the surface of the roll paper cutter blade with a cloth or similar item, or dip the blade in water or other fluids.**
- **Do not disassemble or modify the roll paper cutter.**
- **When replacing the roll paper cutter, make sure that the printer is in the power-off status.**

Replacing the roll paper cutter

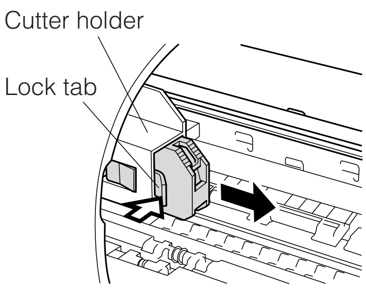
1. Press the [POWER] button to turn off the printer.
   Check that the [POWER] button LED is extinguished.



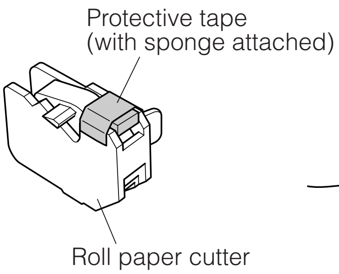
2. Open the center cover.

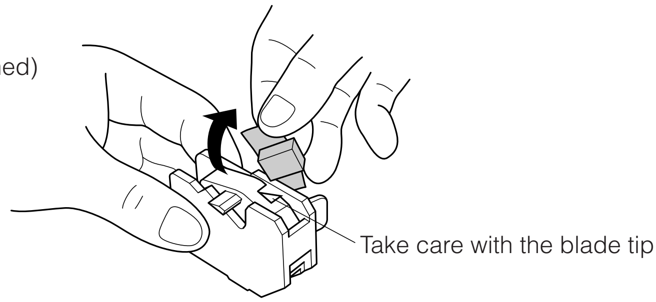


3. While pressing down on the roll paper cutter's lock tab, pull the roll paper cutter out of the cutter holder.

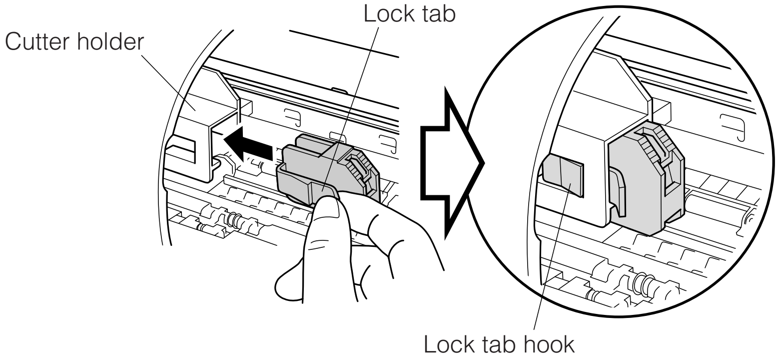


4. Prepare the replacement roll paper cutter for mounting.
Remove the protective tape (with a piece of sponge attached) from the tip of the roll paper cutter blade, taking care not to cut yourself on the blade.

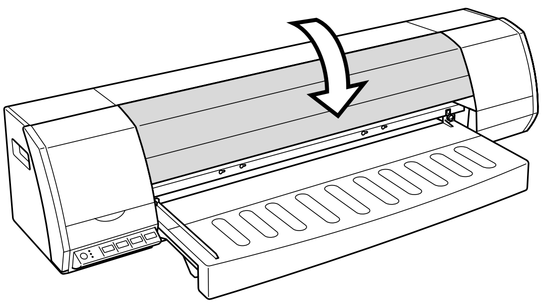




5. Hold the roll paper cutter by its lock tab, and insert the cutter firmly into the holder. After the roll paper cutter has been mounted, check that the lock tab's hook is engaged in the cutter holder's opening.



6. Close the center cover to complete the roll paper cutter replacement operation.



5.6 Cleaning the Printer

Clean the printer whenever cleaning is required.

⚠ CAUTION

- **Before cleaning the printer, turn off the printer's power supply and remove the power cable from the power outlet. Cleaning the printer with the power left on by mistake may result in injuries from contact with internal moving parts.**
- **Do not disassemble or remodel the printer. Such actions may result in a fire hazard or electric shock.**
- **Do not use volatile solvents such as thinner, benzene, or alcohol to clean the printer. Such action may result in a fire hazard or electric shock if a solvent comes into contact with the printer's internal electrical components.**
- **Do not unplug or plug in the power cable when your hands are wet. Such action may result in electric shock.**
- **Do not move the printer with its center cover in the raised position. The cover may close suddenly due to vibrations or bodily contact, and may result in injuries.**

Cleaning the printer

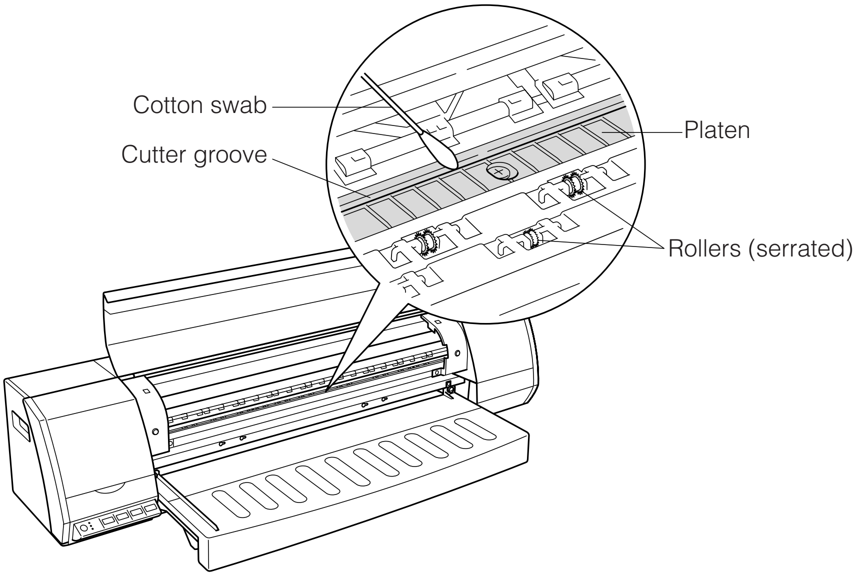
Exterior surfaces

Using a cloth moistened with water and then firmly wrung out, wipe off any dirt on the printer's exterior. Wipe over the cleaned surfaces once again with a dry cloth.

Interior surfaces

Rear surface of the center cover: Do not clean this surface, as doing so may attract static electricity and cause the surface to become easily soiled.

Platen: Use a commercially-available cotton swab or similar item to clean out any paper dust that has become embedded in the cutter groove or other areas. Cotton swabs can also be used to remove ink stains. When performing cleaning, take care not to damage the serrated rollers in front of the platen.



Paper guide table

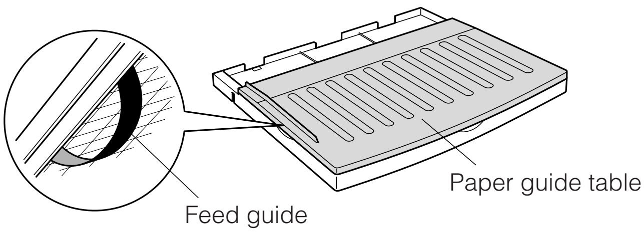
Using a cloth moistened with water and then firmly wrung out, wipe off any dirt on the exterior of the paper guide table. Wipe over the cleaned surfaces once again with a dry cloth.

A2-size paper feed cassette (option)

Using a cloth moistened with water and then firmly wrung out, wipe off any dirt on the exterior of the paper feed cassette. Wipe over the cleaned surfaces once again with a dry cloth.

⚠ CAUTION

Take care not to bend or pull on the feed guide located on the underside of the paper guide table.



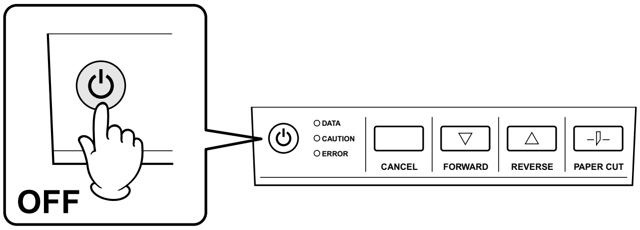
Stand (option)

Using a cloth moistened with water and then firmly wrung out, wipe off any dirt on the exterior of the stand. Wipe over the cleaned surfaces once again with a dry cloth.

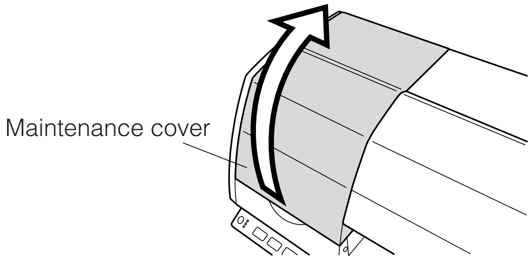
5.7 Cleaning the Maintenance Station

To maintain optimal print head printing quality, clean the maintenance station at regular intervals.

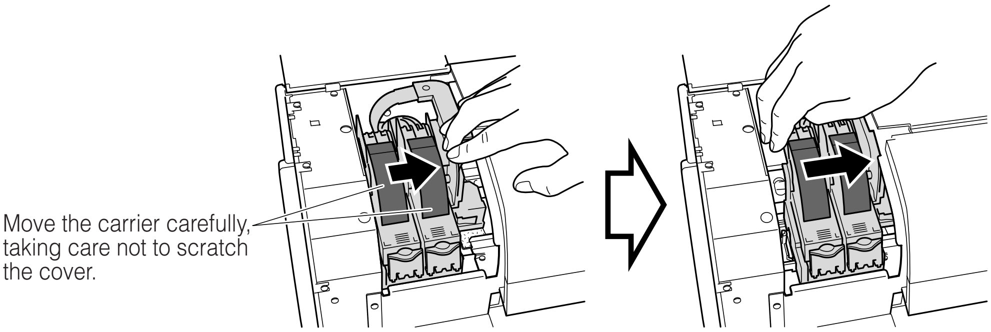
1. Press the [POWER] button to turn off the printer.
   Check that the [POWER] button LED is extinguished.



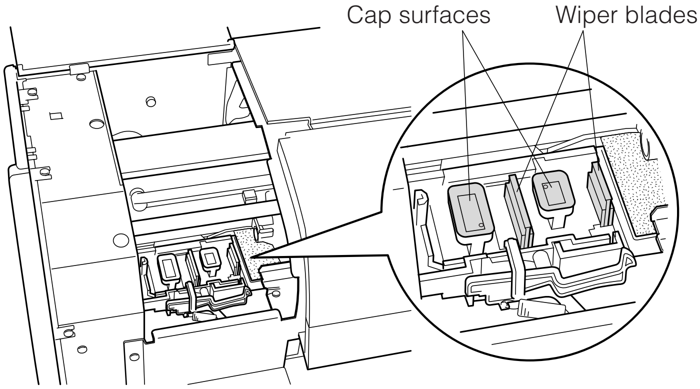
2. Open the maintenance cover at the left-hand side of the printer.



3. Manually move the print head carrier to the right.
   Note: When moving the print head carrier, be sure to hold the section of the carrier indicated in the figure below.



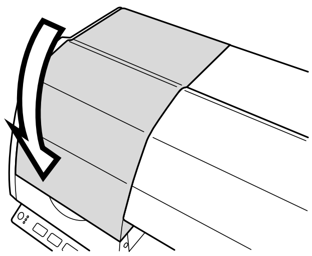
4. Using a clean cloth that has been lightly moistened with warm water (or cold water) and then firmly wrung out, or a sheet of cotton paper, wipe off any dirt on the surface of the wiper blades and the caps. Wipe the cleaned surfaces once again with a dry cloth or another sheet of cotton paper.



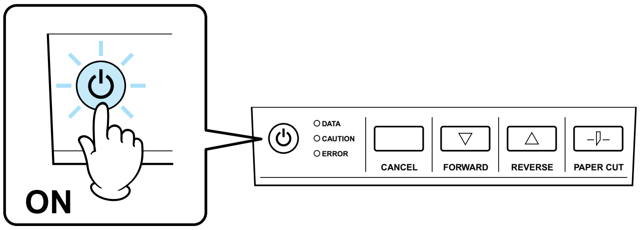
⚠ CAUTION

- **Do not use excessive force when wiping the components. Such action may cause the wiper blades or caps to become deformed.**
- **Check that there are no fibers remaining after wiping the components. Fibers left on the wiper blades or in the caps may become adhered to the print head nozzles and cause a deterioration in print head performance.**
- **Take care not to get your hands or clothing soiled when performing a cleaning operation.**
- **Perform cleaning operations within a 15-minute period. If cleaning is performed for a longer period of time, the print head nozzles may dry up and adversely affect the printing quality.**

5. Gently close the maintenance cover.



6. Press the printer's [POWERÅnbutton to turn on the printer.
Check that the [POWERÅnbutton LED lights blue. The print head carrier returns automatically to the maintenance station, and the printer is ready to print.



IMPORTANT

After cleaning the maintenance station, be sure to turn on the printer and check that the print head carrier has returned properly to the maintenance station.

5.8 Transporting the Printer

- **When moving the printer within the same building:**
  (1) Remove the print heads and ink cartridges.

- **When moving the printer (using a vehicle or other means of transportation) to a different location:**
  (1) Remove the print heads and ink cartridges.
  (2) Mount the transport-use cartridges.
  (3) Promptly mount the print heads and ink cartridges after the printer has arrived at its destination.

- **Storing the printer (for longer than a month):**
  If the printer has not been connected to a commercial power supply
  (1) Please consult your sales representative or nearest Graphtec vender, to extract the ink from the tubes.
  (2) Before using the printer again, mount the new print heads and ink cartridges (that you purchased).

Before transporting the printer, be sure to perform the following preparatory procedure to protect the printer's internal mechanisms.

Items that must be readied

- The JW220's original packing box and shock-absorbing packing materials
- One set of transport-use cartridges (MK-90001: Option) (One black, three color)

⚠ CAUTION

- **If the printer is not readied for transport, there is a risk of ink spattering inside the printer.**
- **Take care not to cut your hands or other parts of your body on the roll paper cutter.**
- **Do not touch the printed circuit boards on the ink cartridges.**
- **Do not drop or shake the ink cartridges.**
- **When placing the printer in its packing box, be sure to observe the following precautions:**
  The printer must be laid flat.
  Do not stand the printer on end.
- **When transporting the printer, be sure to label it ("This side up").**
- **Please consult your sales representative or nearest Graphtec vendor if the printer will not be connected to a power outlet for at least a week or if you plan to store the printer.**

Turning off the printer, and removing the cables

1. Press the printer's [POWER] button to turn off the printer.
   Check that the [POWER] button LED is extinguished.
2. Remove the power cable and the USB cable.

Removing the Print Heads

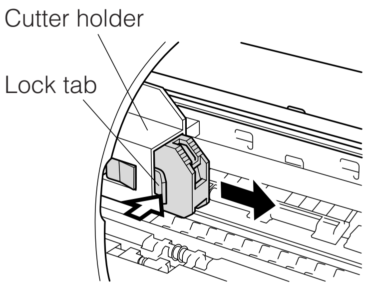
3. Open the maintenance cover at the left-hand side of the printer.
4. Remove the print heads (black and color).
5. Lower the joint block and then press on it to lock it in place.
6. Close the maintenance cover.
7. Store the removed print heads in plastic bags or similar containers.

Removing the ink cartridges and mounting the transport-use cartridges

8. Open the ink cartridge cover at the right-hand side of the printer.
9. Remove all four ink cartridges by sliding them gently along their respective rails in the ink holder.
10. Mount the transport cartridges.
    There are two types: one for the black ink, and the other for the three colored inks. Mount the cartridge for the black ink at the leftmost position in the ink holder by sliding it along the rail until it clicks into place. There is no position specification for the color cartridges. Mount one cartridge in each of the three empty positions in the ink holder by sliding it along the rail until it clicks into place.
11. Place the ink cartridges that were removed in the box that contained the transport cartridges.
    When the printer has arrived at its destination, promptly remove the transport cartridges and replace them with the ink cartridges that were removed prior to transporting the printer.

Removing the roll paper cutter

12. Open the printer's center cover.
13. While pressing down on the lock tab on the roll paper cutter, pull out the cutter from the cutter holder.

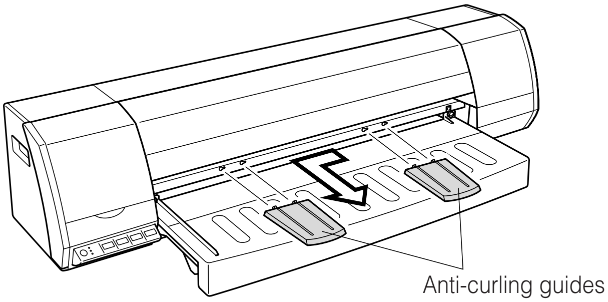


Securing the print head carrier

14. Open the maintenance cover at the left-hand side of the printer.
15. Check that the print head carrier is at the maintenance station position (at the very left of the printer). If it is not at the maintenance station position, manually move the print head carrier slowly towards the left of the printer until the position where it stops.
16. Secure the print head carrier with the shock-absorbing material that was originally used to secure it.

Removing the anti-curling guides, the paper guide table, and the roll paper stocker

17. Remove the anti-curling guides, the paper guide table, and the roll paper stocker from the printer.



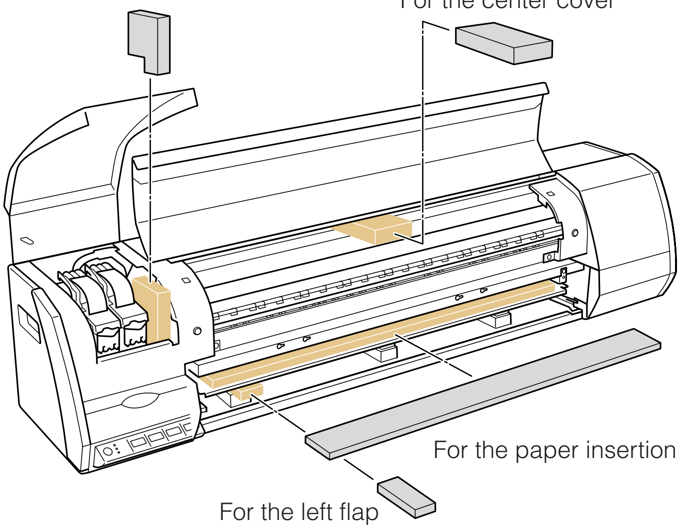
18. Remove the optional A2-size paper feed cassette and the optional stand if they are attached to the printer.

Packing the printer in its box

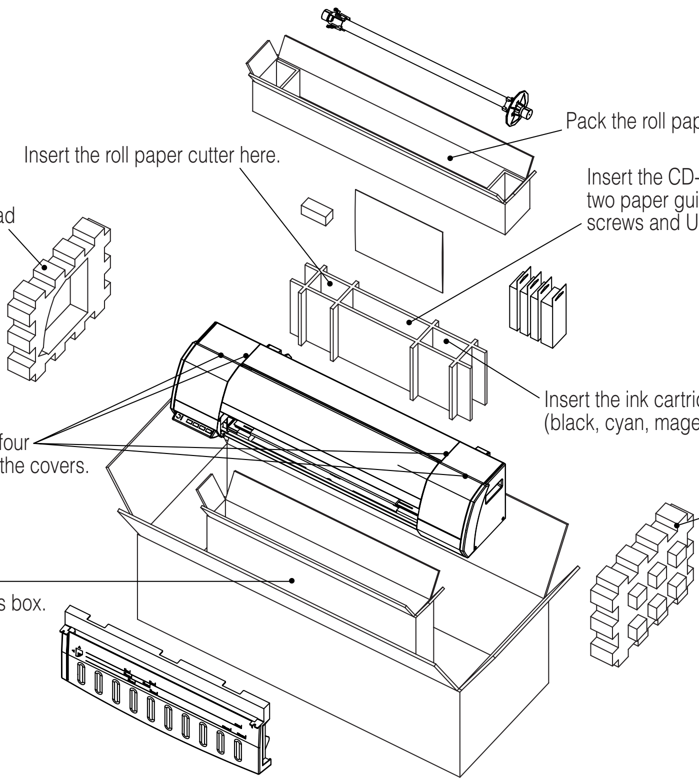
19. Attach all the shock-absorbing materials to the printer, in the reverse order in which they were removed. Next, use tape at four locations to fasten down the covers (maintenance cover, center cover (two locations), ink cartridge cover).
20. Attach the shock-absorbing packing materials to the printer, the anti-curling guides, the paper guide table and the roll stocker, and then repack all these items in the original packing box.

This completes the preparations for transporting the printer.

Attaching the various shock-absorbing packing materials



Packing the components into the packing box

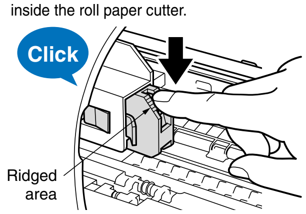


Chapter 6 What to Do if This Happens

6.1 When an Error Message is Displayed

When the printer requires some action to be taken, a message is displayed in the [Printer Information] dialog screen that is displayed on your computer screen.

Messages relating to paper

Item	Message displayed	Printer LED status	Cause	Solution
Out of paper	"Out of paper Please load paper. (If using cassette paper, please press the [FORWARD] button on the control panel after loading the paper.)"	The CAUTION LED lights orange	Paper has not been loaded in the printer, or the printer has run out of paper.	Load paper in the printer (roll paper or a cut sheet). If using the A2-size paper feed cassette, load standard-size paper that is A4-size or larger in the cassette and then press the ▼ key ([F.Forward] key) on the printer's control panel after the paper has been loaded.
Paper feed	"Paper jam occurred, or Printer feed motor abnormality ""A malfunction has occurred in the printer. Please turn off the power.""	The ERROR LED lights red.	A paper jam has occurred. Or, a paper feed error has occurred during a paper feed or printing operation.	Turn off the printer. Check the paper that is loaded in the printer. If the paper is jammed, remove it. Load paper in the printer again. Note: If you are using thin paper or paper that has a tendency to wave, the printer may not be able to feed it correctly. Use Graphtec-specified paper.
Paper width	"Malfunction occurred during paper width detection "Please turn off the power"		A malfunction occurred while the paper width was being detected.	Turn off the printer. Check the paper that is loaded in the printer. If the paper is jammed, remove it. Next, check whether the print heads and the roll paper cutter have been mounted correctly. Note: Thick paper, thin paper, and paper that has a tendency to wave easily may rub against the print head during the paper width detection operation, and may cause the printer to malfunction.
Paper loading	"Paper skew occurred, Please reload the paper correctly"		The paper has been loaded at an angle.	Remove the paper, and then load it again correctly.
Paper jam or roll paper cutter	"Printer carrier motor malfunction ""A malfunction has occurred in the printer. Please turn off the power."" "Printer carrier motor malfunction during cutting ""A malfunction has occurred in the printer. Please turn off the power.""	The ERROR LED lights red.	A paper jam has occurred. Or, the print heads were obstructed while they were moving and they are in the stopped status. (Check whether the blade of the roll paper cutter is in the extended status.)	**[In the case of a paper jam]** Turn off the printer. Check the paper that is loaded in the printer. If the paper is jammed, remove it. Load paper in the printer again. Note: If you are using thin paper or paper that has a tendency to wave, the printer may not be able to feed it correctly. Use Graphtec-specified paper. **[In the case of the roll paper cutter]** Turn off the printer. Remove the paper that has been loaded in the printer. Check whether the blade is seated correctly inside the roll paper cutter. If the blade is not seated correctly, replace the roll paper cutter with a new one. (There is a possibility that one or more of the roll paper cutter components has become worn.) When replacing the roll paper cutter (1) Move the print head carrier to the left. (2) As shown in the diagram below, press down on the ridged part of the roll paper cutter until it clicks, and then check that the blade is seated inside the roll paper cutter.  (3) Replace the roll paper cutter. For further details, see Section 5.5, "Replacing the Roll Paper Cutter" in this manual.

Messages relating to the print heads and ink cartridges

Item	Message displayed	Cause	Solution
Print heads	"Auto alignment failed, Please try the alignment once again."	The print head alignment operation failed.	Check that paper has been loaded correctly in the printer, and then execute the "Print Head Alignment" operation once again.
	"The *** print head has reached the replacement time. Please replace it." (*** indicates the color of the ink)	The *** print head has reached the replacement time.	Replace it with a new *** print head.
	"*** print head error Please replace the print head" (*** indicates the color of the ink)	An error occurred with the *** print head.	Replace it with a new *** print head.
	"No *** print head Please mount it" (*** indicates the color of the ink)	The *** print head is not mounted.	Mount the *** print head correctly.
	"The breakdown of the print-head was detected. Please turn off the printer power by pull out the power cord."	Breakdown of the print-head.	Please replace both the black and the color print-heads. Please pull out the power cord of the printer when becoming a similar error even if print-heads are replaced. Please contact the shop that buys the printer or Graphtec.
Ink cartridge	"No *** ink Please replace the ink cartridge" (*** indicates the color of the ink)	The *** ink has run out.	Replace the *** cartridge with a new one, and then perform printing once again. Printing cannot be performed until the cartridge has been replaced.
	"No *** ink cartridge Please mount it" (*** indicates the color of the ink)	The *** cartridge is not mounted.	Mount the *** cartridge correctly.

Messages relating to the printer

Item	Message displayed	Cause	Solution
Maintenance cover	"Maintenance cover is open Please Close it"	The maintenance cover was opened during a printing operation.	Close the maintenance cover. Printing will be restarted when the cover is closed.
	"Maintenance cover is open Please close the cover after replacing the print head"	The maintenance cover was opened while the printer was in standby status.	Close the maintenance cover. If you are replacing a print head, close the cover when you have finished.
Center cover	"Center cover is open Please Close it"	The center cover was opened during a printing operation.	Close the center cover. Printing will be restarted when the cover is closed.
	"Center cover is open Please close the cover after replacing the roll paper"	The center cover was opened when the printer was in standby status.	Close the center cover. If you are replacing the roll paper, close the cover when you have finished.
Ink cartridge cover	"Ink cartridge cover is open Please Close it."	The ink cartridge cover was opened during a printing operation.	Close the ink cartridge cover. Printing will be restarted when the cover is closed.
	"Ink cartridge cover is open Please close the cover after replacing an ink cartridge"	The ink cartridge cover was opened when the printer was in standby status.	Close the ink cartridge cover. If you are replacing an ink cartridge, close the cover when you have finished.

Messages relating to the print server connection and messages displayed during connection monitoring

Note: Some of these messages may be displayed even when the printer is not connected to a print server.

Item	Message displayed	Cause	Solution
Message displayed during a printing operation	"Printer was not able to be printed by the time-out. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing."	The printer is performing a printing operation.	Check the printer.
Ink cartridge-related messages	"No *** ink Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing." (*** indicates the color of the ink)	The *** ink has run out.	Replace the empty *** ink cartridge with a new *** ink cartridge and then resend the print job. Printing cannot be performed until the ink cartridge has been replaced.
	"No *** ink cartridge Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing." (*** indicates the color of the ink)	The *** ink cartridge has not been mounted.	Check the *** ink cartridge, and mount it correctly.
Print head-related messages	"Please replace the *** print head Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing." (*** indicates the color of the ink)	The *** print head has reached the replacement time.	Replace it with a new *** print head.
	"No *** print head Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing." (*** indicates the color of the ink)	The *** print head has not been mounted.	Mount the *** print head correctly.
Ink cartridge cover-related message	"Ink cartridge cover is open. Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing."	The ink cartridge cover was opened during a printing operation.	Close the ink cartridge cover. Printing will be restarted when the cover is closed.
Center cover-related message	"Center cover is open. Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing."	The center cover was opened during a printing operation.	Close the center cover. Printing will be restarted when the cover is closed.
Maintenance cover-related message	"Maintenance cover is open. Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing."	The maintenance cover was opened during a printing operation.	Close the maintenance cover. Printing will be restarted when the cover is closed.
Other	"Printer not ready Printer was not able to be printed. Please confirm the state of the printer or the connection. Please select the [Retry] when keeping printing. Please select the [Cancel] when discontinuing printing."	The printer has not been turned on. Paper has not been loaded in the printer. The paper is being fed.	Check the printer status.
	"Printer Error Printer was canceled printing. Please confirm the state of the printer or the connection."	A printer malfunction has occurred.	See Section 6.2, "The Printer Does Not Operate Correctly".

6.2 The Printer Does Not Operate Correctly

Symptom	Cause	Solution
Power is not being supplied.	The power cable is not connected.	Connect the power cable firmly.
	Power is not being supplied to the power outlet.	Insert the power plug into a different power outlet.
Printing doesn't start.	Power is not being supplied to the printer.	Turn on the power supply to the printer. Check that the [POWER] button lights blue.
	The interface cable is not connected.	Check that the USB cable or the network cable connecting the printer and the computer is firmly connected.
	Output via the printer driver has not been specified.	Select the "Graphtec JW220-06" driver in the application software and then perform printing.
	The driver is in offline status.	Select the "Graphtec JW220-06" icon in the [Printers] folder, open the [FILE] menu, and then check whether a check has been inserted in the "Use Printer Offline" checkbox. If a check has been inserted, click the checkbox to remove the check.
	The driver's print job has been cancelled.	Select the "Graphtec JW220-06" icon in the [Printers] folder, open the [FILE] menu, and then check whether a check has been inserted in the "Pause" checkbox. If a check has been inserted, click the checkbox to remove the check.
	The driver's print queue is full.	Select the "Graphtec JW220-06" icon in the [Printers] folder, open the [FILE] menu, and then delete all the print jobs. For further details, see Section 4.2, "Canceling Printing in Windows" in this manual.
	Paper has not been loaded.	Load roll paper or a cut sheet. If the optional A2-size paper feed cassette is being used, check that the cassette contains paper.
The paper is not fed straight.	The paper is not been loaded straight.	Load the paper so that it is straight.
The paper is not cut.	The roll paper cutter has not been mounted in the cutter holder.	Mount a roll paper cutter in the cutter holder. For further details, see Section 5.5, "Replacing the Roll Paper Cutter" in this manual.
	"No cut" has been selected for the cutting method setting in the printer driver.	Change the Paper Cut setting to "Perform Cut". For further details, see Section 4.4, "Printer Driver Functions" in this manual.
The paper is not cut cleanly.	The roll paper cutter is worn.	Replace it with a new roll paper cutter.

6.3 When Printing is not Satisfactory

Symptom	Cause	Solution
Ink adhesion is scratchy	Printing is being performed on the wrong side of the paper.	Check the orientation of the paper. High quality printing will not be achieved if printing is performed on the wrong side of the paper.
	The paper being used with the printer is not one of the types specified in the driver.	Check whether the paper being used is one of the types specified in "Paper type" in the printer driver. See Section 4.4, "Printer Driver Functions" in this manual.
	The print head nozzles are clogged.	Select [Print Head Cleaning] from the Printer Information dialog screen and perform print head cleaning two or three times. If the printing quality does not improve after cleaning has been performed, perform print head wiping. See Section 5.3. "Print Head Cleaning and Alignment" in this manual.
	There is no ink in one or more of the ink cartridges. See Section 4.5, "Printer Information Button" in this manual for details on how to check the amount of ink remaining in the cartridges.	Replace the ink cartridge(s) with a new one (new ones). See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The print head's replacement time has been reached. See Section 4.5 "Printer Information Button" in this manual for details on how to check the print head's replacement time.	Replace the print head with a new one. See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The maintenance station is dirty.	Clean the maintenance station. See Section 5.7, "Cleaning the Maintenance Station" in this manual.
The ink on the print is being rubbed.	The paper being used with the printer is not one of the types specified in the driver.	Check whether the paper being used is one of the types specified in "Paper type" in the printer driver. See Section 4.4, "Printer Driver Functions" in this manual.
	Thick paper or wavy paper is being used.	Use Graphtec-specified paper. See Section 3.1, "Usable Paper Types" in this manual.
	High-density (solid-fill) printing is being performed on plain paper.	We recommend the use of coated paper or photo paper for high-density (solid-fill) printing. See Section 3.1, "Usable Paper Types" in this manual.
Ink is not emitted.	There is no ink in the ink cartridges. See Section 4.5, "Printer Information Button" in this manual for details on how to check the amount of ink remaining in the cartridges.	Replace the ink cartridge with a new one. See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The print head's replacement time has been reached. See Section 4.5 "Printer Information Button" in this manual for details on how to check the print head's replacement time.	Replace the print head with a new one. See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The print head nozzles are clogged.	Select [Print Head Cleaning] from the Printer Information dialog screen and perform print head cleaning two or three times. If the printing quality does not improve after cleaning has been performed, perform print head wiping. See Section 5.3, "Print Head Cleaning and Alignment" in this manual.
	The maintenance station is dirty.	Clean the maintenance station. See Section 5.7, "Cleaning the Maintenance Station" in this manual.
The ink smears.	Ink smears easily on the type of paper that is being used.	Use Graphtec-specified paper. See Section 3.1, "Usable Paper Types" in this manual.
	The paper being used with the printer is not one of the types specified in the driver.	Check whether the paper being used is one of the types specified in "Paper type" in the printer driver. See Section 4.4, "Printer Driver Functions" in this manual.
Ruled lines are not lined up	Print head alignment has not been performed.	Select "Print Head Alignment" from the Printer Information dialog screen and perform print head alignment. See Section 5.3, "Print Head Cleaning and Alignment" in this manual.
The length of the paper in the paper feed direction is incorrect.	The paper feed amount is incorrect.	Execute the driver's [Distance adjustment] function. See Section 4.4, "Printer Driver Functions" in this manual.
The edges of the paper are soiled.	The paper is creased or curled.	Remove the creases or curl from the paper, and then reload it.
	The platen is soiled.	Clean the platen. See Section 5.6, "Cleaning the Printer" in this manual.
The reverse side of the paper is soiled.	The platen is soiled.	Clean the platen. See Section 5.6, "Cleaning the Printer" in this manual.
Printing is performed in monochrome	Monochrome has been selected for [Color/Mono mode] in the driver.	Select either [Color Drawing] or [Color Graphic] for [Color/Mono mode] in the driver. See Section 4.4, "Printer Driver Settings" in this manual.
Printing is performed in a different color.	There is no ink in one or more of the ink cartridges. See Section 4.5, "Printer Information Button" in this manual for details on how to check the amount of ink remaining in the cartridges.	Replace the ink cartridge(s) with a new one (new ones). See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The print head's replacement time has been reached. See Section 4.5 "Printer Information Button" in this manual for details on how to check the print head's replacement time.	Replace the print head(s) with a new one (new ones). See Section 5.2, "Replacing Print Heads and Ink Cartridges" in this manual.
	The print head nozzles are clogged.	Select [Print Head Cleaning] from the Printer Information dialog screen and perform print head cleaning two or three times. If the printing quality does not improve after cleaning has been performed, perform print head wiping. See Section 5.3. "Print Head Cleaning and Alignment" in this manual.
	The maintenance station is dirty.	Clean the maintenance station. See Section 5.7, "Cleaning the Maintenance Station" in this manual.

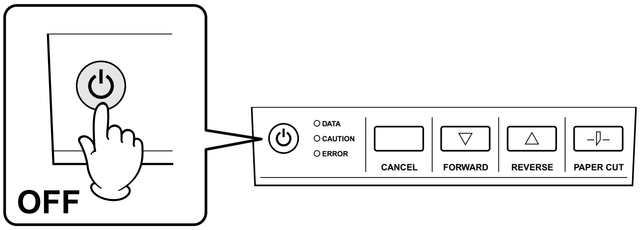
6.4 If the Paper Becomes Jammed

Removing jammed roll paper

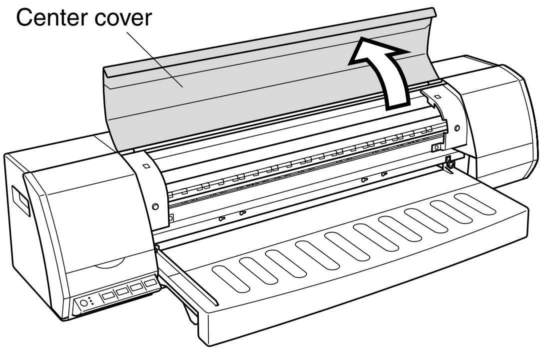
IMPORTANT

Exercise care when removing jammed paper.
Pulling hard on the paper to remove it may cause paper feed problems due to torn paper fragments remaining inside the printer, damage to the roller claws, or a printer malfunction.

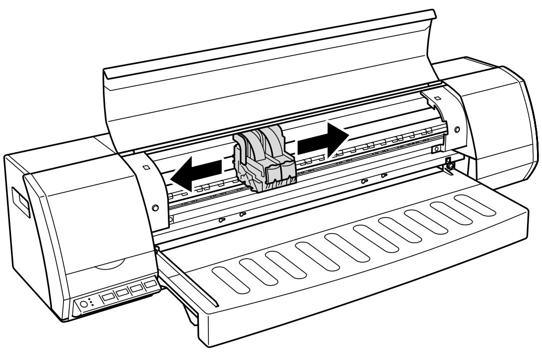
1. Press the [POWER] button to turn the printer off.
   Check that the [POWER] button LED is extinguished.



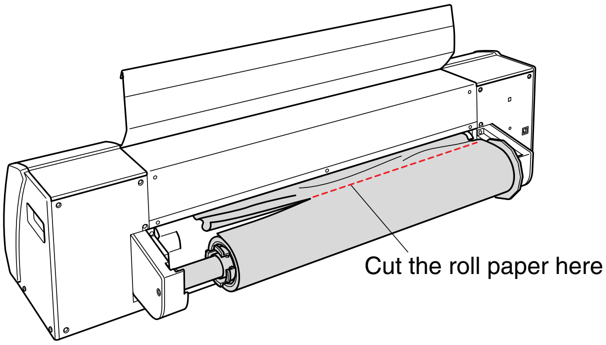
2. Open the center cover.

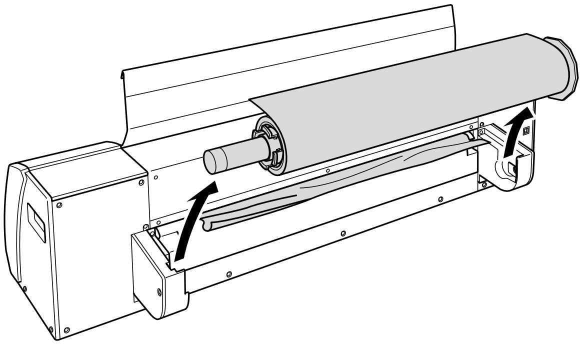


3. If the print head carrier is not positioned at either side of the printer, move it manually to either the left or right side.

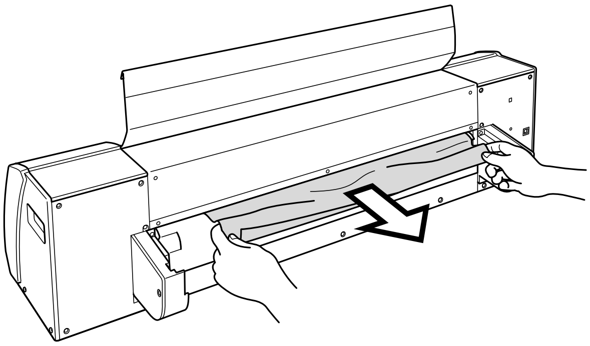


4. Use a cutter knife or a similar tool to cut cleanly through the paper, and then remove the roll from the roll stocker.

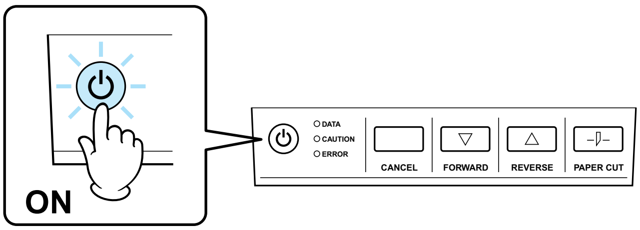




5. Remove the jammed paper. When removing the paper, hold it at both sides and pull it out slowly toward you.



6. Check that all of the jammed paper has been removed, and then press the [POWER] button to turn on the printer.



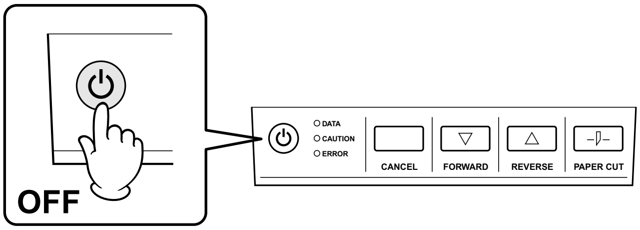
Before restarting the printing operation, perform the "Print Head Cleaning" procedure, and check that the ink nozzles are not clogged. For further details, see Section 5.3, "Print Head Cleaning and Alignment".

Removing a jammed cut sheet

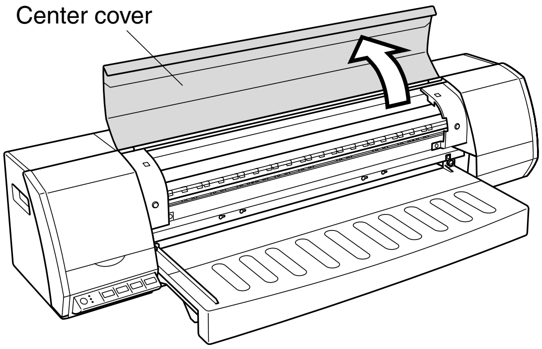
IMPORTANT

Exercise care when removing jammed paper.
Pulling hard on the paper to remove it may cause paper feed problems due to torn paper fragments remaining inside the printer, damage to the roller claws, or a printer malfunction.

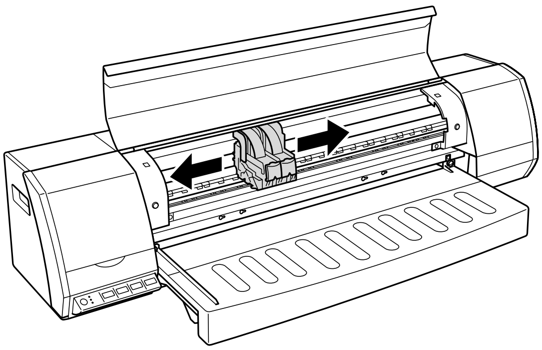
1. Press the [POWER] button to turn the printer off.
   Check that the [POWER] button LED is extinguished.



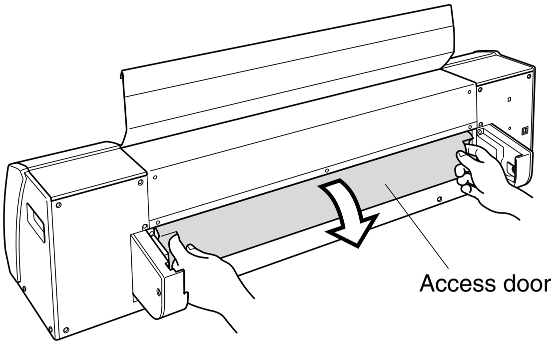
2. Open the center cover.



3. If the print head carrier is not positioned at either side of the printer, move it manually to either the left or right side.



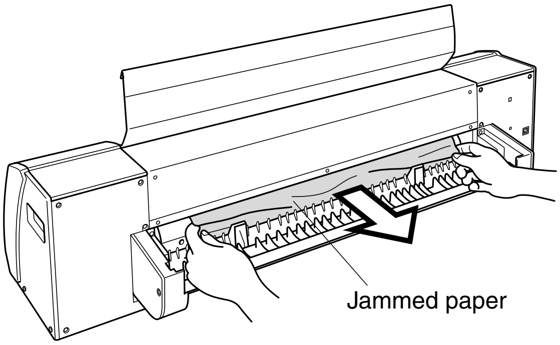
4. Remove the roll paper stocker from the rear of the printer, and then open the access door.



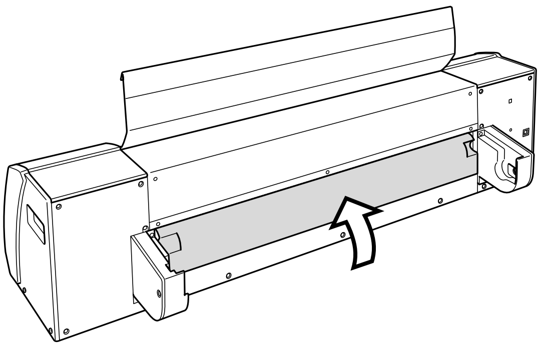
5. Remove the jammed paper. When removing the paper, hold it at both sides and pull it out slowly toward you.

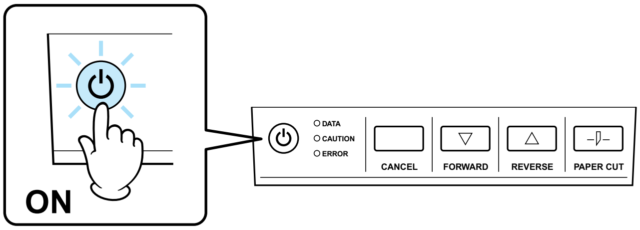
IMPORTANT

When removing jammed paper, be sure to remove it carefully.
If the paper tears and pieces are left in the printer, there is a risk of damage to the rollers or the printer malfunctioning.



6. Check that all of the jammed paper has been removed, close the access door, and then press the [POWER] button to turn on the printer.





7. Before restarting the printing operation, perform the "Print Head Cleaning" procedure, and check that the ink nozzles are not clogged. For further details, see Section 5.3, "Print Head Cleaning and Alignment".

6.5 What to Do When Other Devices Cannot be Recognized

If an imaging device such as a digital camera or a scanner is connected to the computer to which the JW220 has been connected, device recognition may not be performed.

Countermeasure: The problem can be resolved by disabling the JW220 monitor device. Follow the procedure described below to run the Disable utility.

For Windows 98SE/Me/2000/XP

1. Use Windows Explorer to open the [USER GUIDE CD-ROM].

2. Open the [Monitor Disable] folder.

3. Double-click [GMICTLDI.EXE] to run the program.
   A confirmation message is displayed on the screen.

4. Follow the on-screen instructions.

5. Remove the USB cable from the connected digital camera, scanner or other device and then reinsert it.

The device should now be recognized.

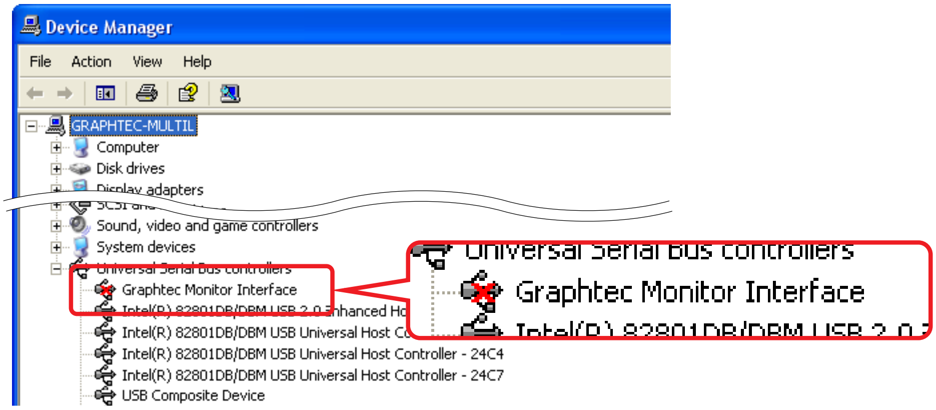
If the digital camera, scanner or other device is still not recognized after you have performed the above procedure, refer to the following section entitled "How to Check Whether the Monitor Device is Disabled", and, if it is enabled, proceed to disable it.

"How to Check Whether the Monitor Device is Disabled"
(Windows XP is used for this example)
1. Open Control Panel from My Computer or from the Start menu.

2. Click the [System] icon.

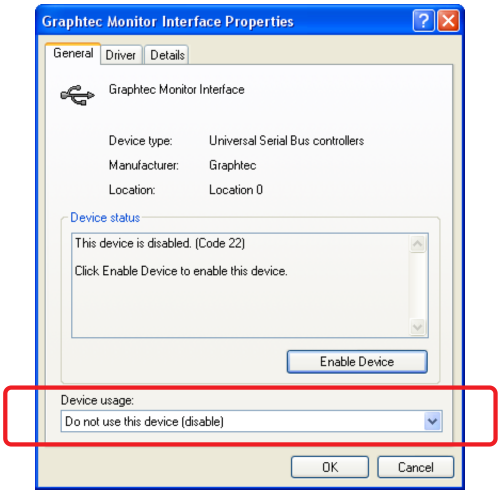
3. The System Properties dialog box appears. Select the [Hardware] tab and then click the [Device Manager] button.

4. Open [Universal Serial Bus controllers] by clicking the plus sign. The following screen is displayed.



5. Check that Graphtec Monitor Interface is disabled (marked with a red cross).

6. If it is not disabled (marked with a red cross), select Graphtec Monitor Interface, right-click the mouse, and then select [Properties] to display the following screen.

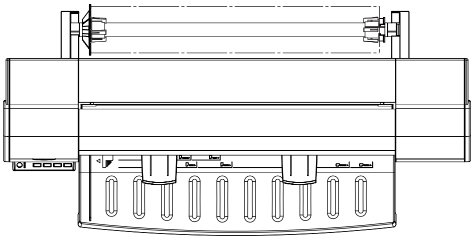


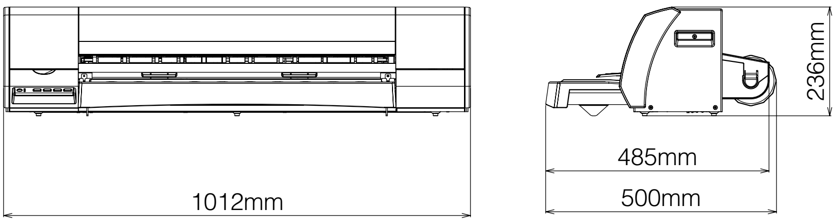
7. In the Device Usage box, change "Use this device (enable)" to "Do not use this device (disable)".

Appendix A Standard Specifications

A.1 External Dimensions and Weight Standard Specifications

Dimensional accuracy: ±5 mm

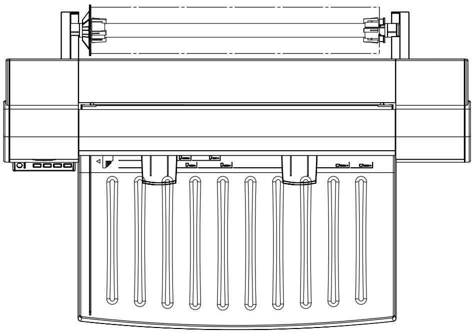


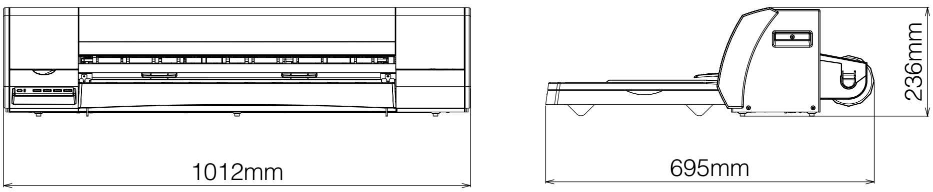


Weight: approx. 17.2 kg

A.2 External Dimensions and Weight When the A2-size paper feed cassette is installed

Dimensional accuracy: ±5 mm

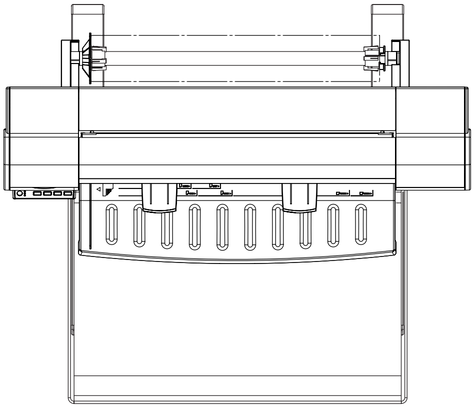


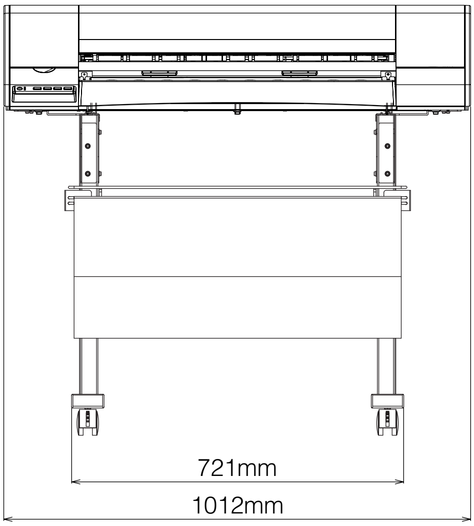


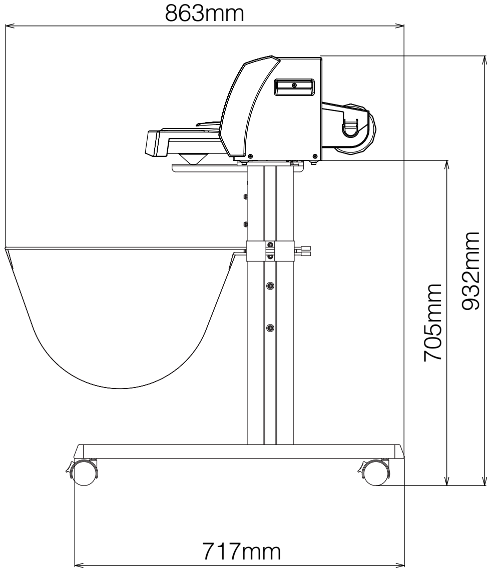
Weight: approx. 19.6 kg

A.3 External Dimensions and Weight When the printer is mounted on a stand (ST0060: option)

Dimensional accuracy: ±5 mm







Weight [paper guide table + stand (option)]: approx. 27.4 kg
Weight [A2-size paper feed cassette + stand (option)]: 30.8 kg

Note: The external dimensions when the A2-size paper feed cassette is mounted are the same as when the paper guide table is mounted. The paper guide table is shown in the above diagrams.

A.4 Standard Specifications

Item	Specification
Printing system	Thermal inkjet
Print heads	Black, color (C/M/Y nozzles combined)
Ink	4 colors (Bk, C, M, Y)
Number of print head nozzles	Bk: 620 (320 x 2 rows), Color (160 x 3 colors)
Printing resolution	Color: 4800 x 1200 dpi max. Monochrome: 2400 x 1200 dpi max.
Print modes	High-speed, Standard, High quality
Printing speed*1	Color printing: approx. 250 seconds for an A1-size drawing (print mode: high-speed) Monochrome printing: approx. 85 seconds for an A1-size drawing (print mode: high-speed)
Ink supply system	Off-carrier ink system
Distance accuracy	±0.1% or ±0.1 mm, whichever is larger (after user distance compensation has been performed)
Allowable paper sizes*2	ISO : A1, A2, A3, A4, B2, B3, B4 ANSI : 22 x 34, 17 x 22, 11 x 17, 8.5 x 11 inches ANSI Arch: 24 x 36, 18 x 24, 12 x 18, 9 x 12 inches DIN : A1, A2, A3, A4 JIS : B2, B3, B4
Allowable paper thickness	0.065 to 0.190 mm
Maximum paper width	625 mm
Paper source	Roll feed, manual feeding of cut sheets, A2-size paper feed cassette
Maximum printing length*3	Roll paper : 18 m Cut sheets: 1.4 m
Margins ("Narrow" setting)	Roll paper : Leading edge, trailing edge, left/right edges: 5 mm for each margin Cut sheets: Leading edge, trailing edge, left/right edges: 5 mm for each margin
Margins (accuracy guaranteed)	Roll paper : Leading edge, trailing edge, left/right edges: 5 mm for each margin Cut sheets: Leading edge 5 mm, trailing edge 13 mm, left/right 5 mm
Paper supply switching	Manual switching between roll paper and cut sheets
Interfaces	Standard: USB 2.0 Full-speed Option : Ethernet print server (For 10 base-T/100 base-TX)
Rated power supply	100 to 240 VAC, 50/60 Hz
Power consumption	During operation: 50 W or less; Standby status: 10 W or less
Operating environment	Temperature: 15 to 30 °C, Humidity : 20 to 80% RH (non-condensing)
External dimensions (W x D x H) (approx.)	1012 x 500 x 236 mm (excluding paper guide table, roll media holder and stand) *4
Weight (approx.)	17.2 kg (excluding paper guide table, roll media holder and stand), and without any consumable items mounted or loaded) *5

*1 This printing speed only applies when the settings are "plain paper" and "high-speed".
*2 The maximum paper size that can be inserted in the A2-size paper feed cassette is A2.
*3 Max. 1380 mm when using Windows 98SE and Windows Me
*4 External dimensions when the A2-size paper feed cassette is inserted:1012 x 695 x 236 mm
*5 Weight when the A2-size paper feed cassette is inserted: 19.6 kg

Appendix B Options and Supplies

B.1 Options

Product Name	Part No.	Specification/Description
Ethernet print server	N4000e	For 10 base-T/100 base-TX
A1-size stand for JW printers	ST0060	Stand for JW220-06

B.2 Supplies

• Print heads

Product Name	Part No.	Specification/Description
Print head (black)	IH-90001BK	Black, single-color
Print head (color)	IH-90001CMY	Three colors combined

• Ink cartridges

Product Name	Part No.	Specification/Description
Ink cartridge (black)	IJ-90001BK	Pigment ink, ink capacity: 100 ml
Ink cartridge (cyan)	IJ-90001C	Dye ink, ink capacity: 50 ml
Ink cartridge (magenta)	IJ-90001M	Dye ink, ink capacity: 50 ml
Ink cartridge (yellow)	IJ-90001Y	Dye ink, ink capacity: 50 ml

• Roll paper cutter

Product Name	Part No.	Specification/Description
Roll paper cutter	CT03U	Supersteel blade

- **Media (roll paper)**

Product Name	Part No.	Specification	Description
Plain paper 64 g/m^2	JC-A1R-PM-R2	594 mm x 50 m (2 rolls)	80% whiteness
	JC-A2R-PM-R2	420 mm x 50 m (2 rolls)	
	JC-24R-PM	610 mm x 50 m (1 roll)	
Recycled paper 64 g/m^2	JC-A1R-RMW2-R2	594 mm x 50 m (2 rolls)	70% recycled-paper content 80% whiteness Same level of whiteness as plain paper
	JC-A2R-RMW2-R2	420 mm x 50 m (2 rolls)	
Recycled paper 64 g/m^2	JC-A1R-RM2	594 mm x 50 m (1 roll)	100% recycled-paper content 70% whiteness
	JC-A2R-RM2	420 mm x 50 m (1 roll)	
	JC-24R-RM2	610 mm x 50 m (1 roll)	
Matte coated paper 90 g/m^2	JC-A1R-ST2-R2	594 mm x 45 m (2 rolls)	High degree of whiteness, ideal for checking the output of graphics
	JC-A2R-ST2-R2	420 mm x 45 m (2 rolls)	
	JC-24R-ST2	610 mm x 45 m (1 roll)	
Thick matte coated paper 117 g/m^2	JC-24R-STM2	610 mm x 30 m (1 roll)	Fast drying, high degree of whiteness, ideal for printing color drawings and posters
Ecological coated paper 80 g/m^2	JC-A1R-RCT-R2	594 mm x 50 m (2 rolls)	70% recycled-paper content 80% whiteness
Tracing paper 75 g/m^2	JC-A1R-TM2	594 mm x 50 m (1 roll)	Thin paper, high translucency
	JC-A2R-TM2	420 mm x 50 m (1 roll)	
Fast-drying glossy photo paper 175/m^2	JC-24R-WRP2	610 mm x 30 m (1 roll)	Fast drying, low water resistance, plain paper base

- **Media (cut sheets)**

Product Name	Part No.	Specification	Description
Plain paper 64 g/m^2	JC-A1L-PM-100	594 mm x 841 mm (100 sheets)	80% whiteness
	JC-A2L-PM-100	420 mm x 594 mm (100 sheets)	
Tracing paper 75 g/m^2	JC-A1L-TM2	594 mm x 841 mm (50 sheets)	Thin paper, high translucency
	JC-A2L-TM2	420 mm x 594 mm (50 sheets)	

B.3 Cartridges for use when transporting the printer

Product Name	Part No.	Specification/Description
Transport-use cartridges	MK-90001	Transport-use cartridge (black):1 Transport-use cartridge (color): 3

Index

P

R

S

T

U

W

The specifications, etc., in this manual are subject to change without notice.

JW220-UM-151

December 25, 2006 5th edition-01

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